



Distribution-free testing in linear and parametric regression

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Abstract

Recently, a distribution-free approach for testing parametric hypotheses based on unitary transformations has been suggested in Khmaladze (Ann Stat 41:2979–2993, 2013, Bernoulli 22:563–588, 2016) and further studied in Nguyen (Metrika 80:153–170, 2017) and Roberts (Stat Probab Lett 150:47–53, 2019). In this paper, we show that the transformation takes very simple form in distribution-free testing of linear regression. Then, we extend it to the general parametric regression with vector-valued covariates.

Keywords Regression empirical process · Unitary operators · Distribution-free residuals · Linear regression · Optimal transport

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