A Test for the Validity of Regression Models

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1 Abstract

In this talk, I elaborate the connection between prediction and description in regression analysis. Many empirical studies aim at description, which requires a valid regression model. I show that regression models with a strong prediction power can be highly invalid and thus be inappropriate for the purpose of description. Conversely, valid regression models may have a weak prediction power and they even need not fit at all. For this reason, measures of prediction power, or of goodness of fit, are not suitable for assessing the validity of regression models. I present a simple validity test, which can be applied to all types of regression models with any number of regressors. It is very powerful in large samples and performs very well also in small samples, given that the validity of the regression model is sufficiently low and that there is not too much noise in the true regression equation.