

WEIGHT SELECTIONS FOR MODEL AVERAGE ESTIMATORS

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Abstract

The paradigm shift from the traditional approaches of model selection to model averaging is gaining ground in several disciplines, partly because of the obvious shortcoming of the former methods that tend to underreport variability and the benefit offered by the latter in that it helps account for the uncertainty inherent in the model selection process. Developing appropriate weight selection methods is an important problem for frequentist model averaging. Recently, Hansen (2007) proposed a frequentist model average estimator with weights selected by minimizing a Mallows' criterion. While Hansen's approach has considerable appeals, there are also important challenges and the purpose of this paper is to propose an alternative weight selection scheme that overcomes these difficulties. We derive an unbiased estimator of the MSE of a frequentist model average estimator and propose selecting the weights by minimizing the trace of the MSE estimate. Our approach offers considerable merits over Hansen's method in that first, no explicit ordering of regressors is required, and second, our chosen criterion is based on finite sample justifications. We find that the optimal estimator obtained with our method has better risk performance than Hansen's Mallows estimator in a variety of situations.

Keywords: Finite Samples, Model Averaging, Regression, Unbiased MSE Estimator

Reference:

Hansen, B. E. (2007), "Least squares model averaging", *Econometrica* 75, 1175-1190.