Robust inference with minimum dual divergence estimators for moment condition models

A. Toma[1*] and A. Keziou[2]

[1] *Department of Applied Mathematics, Bucharest Academy of Economic Studies, and Gh. Mihoc - C. Iacob Institute of Mathematical Statistics and Applied Mathematics, Bucharest, Romania; aida_toma@yahoo.com.*
[2] *Laboratoire de Mathematiques de Reims, Universite de Reims, Champagne Ardenne, UFR Sciences, Moulin de la Housse, B.P. 1039, 51687 Reims, France; amor.keziou@univ.reims.fr.*
[*] *Presenting author*

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The minimum dual divergence estimators and tests for moment condition models have been proposed recently in literature. The main advantage, of using a divergence based approach and duality, lays in the fact that it leads to asymptotic properties of the estimators and test statistics under the model, as well as under the alternative including misspecification, which cannot be achieved through the classical empirical likelihood context. Also, the estimators are asymptotically the best in the sense on Hansen yielding a "smallest" asymptotic covariance matrix. On the other hand, the estimators of the unknown parameter corresponding to the model have bounded influence functions if and only if the function inducing the orthogonality conditions of the model is bounded. Since in many applications this function is not bounded, it is useful to have procedures that modify the orthogonality conditions in order to obtain robust versions of the estimators. In this paper we propose robust versions of the minimum dual divergence estimators using truncated orthogonality functions. We prove robustness properties and asymptotic properties for the new estimation method, underlying some advantages of using it with respect to other known methods. The performance of the new method is illustrated through Monte Carlo simulations for some moment condition model.

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