

Robust Indirect Inference for Dependent Observations

M.G. Genton¹ and E. Ronchetti²

¹ Department of Statistics, 209-D, North Carolina State University, Raleigh, NC 27695-8203, USA

² Department of Econometrics, University of Geneva, Blv. Pont D'Arve 40, CH-1211 Geneva, Switzerland

Keywords: Dependent observations, Influence function, Robustness of validity, Robustness of efficiency, Space-time autoregression, Stochastic differential equations.

Abstract

In this paper, we develop robust indirect inference for a variety of models in a unified framework. We investigate the local robustness properties of indirect inference and we derive the influence function of the indirect estimator, as well as the level and power influence functions of indirect tests. These tools are then used to design indirect inference procedures which are stable in the presence of small deviations from the assumed model. Although indirect inference was originally proposed for statistical models whose likelihood is difficult or even impossible to compute and/or to maximize, we use it here as a device to robustify the estimators and tests for models where this is not possible or difficult with classical techniques such as M-estimators. Examples from financial applications, time series, and spatial statistics are used for illustration.

Please fill in this form and mail it together with your abstract.

My abstract fits best to topic number ...**21, 11, 7**.

List of Topics:

1. Algorithms
2. Applications
3. Biostatistics
4. Computing and graphics
5. Data analysis
6. Data mining
7. Economics, finance
8. Efficiency and robustness
9. Functionals and bias
10. Fuzzy statistics
11. Geostatistics
12. Inference for robust methods, model testing
13. Location depth and regression depth
14. Multivariate methods
15. Neural networks
16. Rank-based methods
17. Regression quantiles, trimming
18. Robust covariance
19. Robust designs
20. Robust regression
21. Time series analysis
22. Wavelets
23. Other (please specify)