

Weighted Empiricals and Linear Models

by Hira L. Koul

An empirical process that assigns possible different non-random (random) weights to different observations is called a *weighted (randomly weighted) empirical process*. These processes are as basic to linear regression and autoregression models as the ordinary process is to one sample models. However, their usefulness in studying linear regression and autoregression models has not been fully exploited. This monograph addresses this question to a large extent.

Contents

Introduction

Weighted empirical processes; M-, R-, and scale estimators; Minimum distance estimators and goodness-of-fit tests; Randomly weighted empirical processes

Asymptotic Properties of Weighted Empiricals

Introduction; Weak convergence; Asymptotic uniform linearity (A.U.L.) of residual w.e.p.'s; Some further probabilistic results for w.e.p.'s

Linear Rank and Signed Rank Statistics

Introduction; AUL of linear rank statistics; AUL of linear signed rank statistics; Weak convergence of rank and signed rank w.e.p.'s

M, R, and Some Scale Estimators

Introduction; M-estimators; Distribution of some scale estimators; R-estimators; Estimation of Q(f)

Minimum Distance Estimators

Introduction; Definitions of M. D. estimators; Finite sample properties and existence; Asymptotics of minimum dispersion estimators: A general case; Asymptotic uniform quadraticity; Asymptotic distributions, efficiencies, and robustness

Goodness-of-Fit Tests for the Errors

Introduction; The supremum distance tests; L₂-distance tests; Testing with unknown scale; Testing for symmetry of the errors

Autoregression

Introduction; Asymptotic uniform linearity of W_h and F_n; GM- and R-estimators; M.D. Estimation; Goodness-of-fit testing

Appendix

Bibliography

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