Record Nr. UNINA9910643772503321 Robust statistics [[electronic resource]]: the approach based on **Titolo** influence functions / / Frank R. Hampel ... [et al.] Pubbl/distr/stampa New York, : Wiley, 1986 **ISBN** 1-283-33237-X 9786613332370 1-118-18643-5 1-118-15068-6 Descrizione fisica 1 online resource (538 p.) Collana Wiley series in probability and statistics Altri autori (Persone) HampelFrank R. <1941-> Disciplina 519.5 519.54 Soggetti Robust statistics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Robust Statistics: The Approach Based on Influence Functions; Contents; 1. INTRODUCTION AND MOTIVATION; 1.1. The Place and Aims of Robust Statistics; 1.1a. What Is Robust Statistics?; 1.1b. The Relation to Some Other Key Words in Statistics; 1.1c. The Aims of Robust Statistics; 1.1d. An Example; 1.2. Why Robust Statistics?; 1.2a. The Role of Parametric Models; 1.2b. Types of Deviations from Parametric Models; 1.2c. The Frequency of Gross Errors; 1.2d. The Effects of Mild Deviations from a Parametric Model; 1.2e. How **Necessary Are Robust Procedures?** 1.3. The Main Approaches towards a Theory of Robustness1.3a. Some Historical Notes; 1.3b. Huber's Minimax Approach for Robust Estimation; 1.3c. Huber's Second Approach to Robust Statistics via Robustifed Likelihood Ratio Tests: 1.3d. The Approach Based on In Juence Functions; 1.3e. The Relation between the Minimax Approach and the Approach Based on Influence Functions; 1.3f. The Approach Based on Influence Functions as a Robustifed Likelihood Approach, and Its Relation to Various Statistical Schools; *1.4. Rejection of Outliers

and Robust Statistics: 1.4a. Why Rejection of Outliers?

1.4b. How Well Are Objective and Subjective Methods for the Rejection

of Outliers Doing in the Context of Robust Estimation? Exercises and Problems; 2. ONE-DIMENSIONAL ESTIMATORS; 2.0. An Introductory Example; 2.1. The Influence Function; 2.1a. Parametric Models. Estimators, and Functionals; 2.1b. Definition and Properties of the Influence Function; 2.1c. Robustness Measures Derived from the Influence Function; 2.1d. Some Simple Examples; 2.1e. Finite-Sample Versions; 2.2. The Breakdown Point and Qualitative Robustness; 2.2a. Global Reliability: The Breakdown Point 2.2b. Continuity and Qualitative Robustness2.3. Classes of Estimators: 2.3a. M-Estimators; 2.3b. L-Estimators; 2.3c. R-Estimators; 2.3d. Other Types of Estimators: A, D, P, S, W; 2.4. Optimally Bounding the Gross-Error Sensitivity; 2.4a. The General Optimality Result; 2.4b. M-Estimator; 2.4c. L-Estimators; 2.4d. R-Estimators; 2.5. The Change-of-Variance Function; 2.5a. Definitions; 2.5b. B-Robustness versus V-Robustness: 2.5c. The Most Robust Estimator: 2.5d. Optimal Robust Estimators; 2.5e. M-Estimators for Scale; *2.5f. Further Topics; 2.6. Redescending M-Estimators; 2.6a. Introduction 2.6b. Most Robust Estimators 2.6c. Optimal Robust Estimators; 2.6d. Schematic Summary of Sections 2.5 and 2.6; *2.6e. Redescending M-Estimators for Scale; 2.7. Relation with Huber's Minimax Approach; Exercises and Problems; 3. ONE-DIMENSIONAL TESTS; 3.1. Introduction; 3.2. The Influence Function for Tests; 3.2a. Definition of the Influence Function; 3.2b. Properties of the Influence Function; 3.2c. Relation with Level and Power: 3.2d. Connection with Shift Estimators: 3.3. Classes of Tests: 3.3a The One-Sample Case: 3.3b. The Two-Sample Case; 3.4. Optimally Bounding the Gross-Error Sensitivity 3.5. Extending the Change-of-Variance Function to Tests

Sommario/riassunto

The Wiley-Interscience Paperback Series consists of selected books that have been made more accessible to consumers in an effort to increase global appeal and general circulation. With these new unabridged softcover volumes, Wiley hopes to extend the lives of these works by making them available to future generations of statisticians, mathematicians, and scientists. ""This is a nice book containing a wealth of information, much of it due to the authors. . . . If an instructor designing such a course wanted a textbook, this book would be the best choice available. . . . There are many