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Nota di contenuto	Theory of Preliminary Test and Stein-Type Estimation with Applications; Contents; List of Figures; List of Figures; List of Tables; List of Tables; Preface; 1 Introduction; 1.1.1 Batting averages of 18 players; 1.1 Display of predicted batting averages based on Stein's formula; 1.1 Objective of This Book; 1.2 Statistical Decision Principle; 1.3 Quadratic Loss Function; 1.4 Some Statistical Models with Preliminaries; 1.4.1 Mean and Simple Linear Models; 1.4.2 One-Sample Multivariate Model; 1.4.3 ANOVA Models; 1.4.4 Parallelism Models 1.4.5 Multiple Regression Model and General Linear Hypothesis1.4.6 Simple Multivariate Linear Model; 1.4.7 Discrete Data Models; 1.5 Organization of the Book; 1.6 Conclusions; 1.7 Problems; 2 Preliminaries; 2.1 Normal Distribution; 2.2 Chi-square Distribution and Properties; 2.3 Some Results from Multivariate Normal Theory; 2.4 Beta Distribution and Applications; 2.5 Discrete Distributions; 2.5.1 Binomial Distribution; 2.5.2 Multinomial Distribution; 2.6 Matrix Results; 2.7 Large Sample Theory; 2.7.1 Four Types of Convergence; 2.7.2 Law of

Large Numbers; 2.7.3 Central Limit Theorems

2.8 Nonparametric Theory: Preliminaries 2.8.1 Order-Statistics, Ranks, and Sign Statistics; 2.8.2 Linear rank-statistics (LRS); 2.8.3 Rank Estimators of the Parameters of Various Models; 2.9 Problems; 3 Preliminary Test Estimation; 3.1 Simple Linear Model, Estimators, and Tests; 3.1.1 Simple Linear Model; 3.1.2 Estimation of the Intercept and Slope Parameter; 3.1.3 Test for the Slope Parameter; 3.2 PTE of the Intercept Parameter; 3.2.1 UE, RE and PTE of the Intercept Parameter; 3.2.2 Bias and MSE Expressions; 3.2.3 Comparison of bias and mse functions

3.2.1 Graph of quadratic bias functions of the estimators 3.2.4 Optimum Level of Significance of Preliminary Test; 3.2.2 Graph of MRE (t_n ; t_n) and MRE(t_{PTn} ; t_n); 3.2.1 Maximum and Minimum Guaranteed Efficiencies for $n = 8$; 3.2.2 Maximum and Minimum Guaranteed Efficiencies for $n = 12$ and $x^2/Q = 0.1(0.2)0.9$; 3.3 Two-Sample Problem and Pooling of Means; 3.3.1 Model; 3.3.2 Estimation and Test of the Difference between Two Means; 3.3.3 Bias and mse Expression of the Three Estimators of a Mean; 3.3.1 Maximum and Minimum Guaranteed Efficiencies; 3.3.2 Maximum and Minimum Guaranteed Efficiencies

3.3.3 Maximum and Minimum Guaranteed Efficiencies 3.4 One-Sample Problem: Estimation of Mean; 3.4.1 Model; 3.4.2 Unrestricted, Restricted, and Preliminary Test Estimators; 3.3.1 Graph of MRE (m_1 ; m_1) and MRE(m_{PT1} ; m_1); 3.4.3 Bias, mse, and Analysis of Efficiency; 3.5 An Alternative Approach; 3.5.1 Introduction; 3.4.1 Minimum and Maximum Efficiency of PTE; 3.5.2 One-Sample Problem; 3.5.3 Comparison of PTE, t_{PTn} and SE t_{Sn} ; 3.5.1 Maximum and Minimum Efficiencies of SE and Efficiency of PTE at D_0 for Selected a ; 3.5.4 Simple Linear Model and Shrinkage Estimation

3.5.1 Graph of the relative efficiency of SE and PTE for different values of a

Sommario/riassunto

Theory of Preliminary Test and Stein-Type Estimation with Applications provides a comprehensive account of the theory and methods of estimation in a variety of standard models used in applied statistical inference. It is an in-depth introduction to the estimation theory for graduate students, practitioners, and researchers in various fields, such as statistics, engineering, social sciences, and medical sciences. Coverage of the material is designed as a first step in improving the estimates before applying full Bayesian methodology, while problems at the end of each chapter enlarge the scope
