David, Herbert. A.; **Nagaraja, H. N.**
Order statistics. 3rd ed. (English) Zbl 1053.62060
Wiley Series in Probability and Statistics. Chichester: John Wiley & Sons (ISBN 0-471-38926-9/hbk; 978-0-471-72216-8/ebook). xv, 458 p. (2003).

The second edition of this monograph was published in 1981; since that time both theory and applications of order statistics have greatly expanded. The book under review, which continues to be both a textbook and a guide to research literature, addresses this fact. It consists of an introduction and 11 chapters. The authors present in detail an up-to-date account of basic results related to order statistics. Many special topics are also taken up, but for these merely an introduction is provided if other, more extensive accounts exist. The book consists of the following chapters and appendices:

Chapter 1. Introduction. Chapter 2. Basic distribution theory. Chapter 3. Expected values and moments. Chapter 4. Bounds and approximations for moments of order statistics. Chapter 5. The non-iid case. Chapter 6. Further distribution theory. Chapter 7. Order statistics in nonparametric inference. Chapter 8. Order statistics in parametric inference. Chapter 9. Short-cut procedures. Chapter 10. Asymptotic theory. Chapter 11. Asymptotic results for functions of order statistics. Appendix. Guide to tables and algorithms.

Chapters 2-9 deal with finite-sample theory, with division into distribution theory (Chapters 2-6) and statistical inference (Chapters 7-9). Asymptotic theory is treated in Chapters 10 and 11, representing a doubling in coverage. In addition to an increased emphasis on asymptotic theory and on order statistics in other than random samples (Chapter 5), the following sections are entirely or relatively new:

2.6. Related statistics; 4.4. Stochastic orderings; 6.6. Moving order statistics; 6.7. Characterizations; 7.3. Distribution-free prediction intervals; 8.2. Information in order statistics; 8.3. Bootstrap estimation; 9.6. Studentized range; 9.8. Ranked-set sampling; 9.9. O-statistics and L-moments in data summarization. Section 6.6 includes a major application to median and order-statistic filters and Section 9.6 to bioequivalence testing. The number of references increased from 1000 in the second edition to around 1500.

Reviewer: Joseph Melamed (Los Angeles)

MSC:

62G30 Order statistics; empirical distribution functions
62-02 Research exposition (monographs, survey articles) pertaining to statistics

Full Text: DOI