Book Reviews

Pratt, J.W., and J.D. Gibbons: Concepts of nonparametric theory. Springer Series in Statistics. Springer Verlag, New York–Heidelberg–Berlin 1981, 462 p., 23 figs., US \$ 38.00.

In the Preface to their book the authors claim that their main motivation for writing the book was to provide a "thorough intuitive understanding of the concepts underlying nonparametric procedures" rather than formal details of the theory in the usual fashion via theorems and proofs. Doubtlessly the authors succeeded in reaching their aim; they present a less traditional exposition of the concepts of nonparametric statistics, apt for classroom use at various levels of mathematical background and for instruction in various directions of application. Since the "approach throughout is more conceptual than mathematical", it seems clear that special situations and concrete examples dominate the general approach, that philosophical and methodological comments and remarks are not considered to be redundant aspects for the process of understanding the ideas, that selections of proofs are shifted to the ends of the sections and that extensive lists of problems and appendices contain more theoretical material than exercise corresponding to the conceptual presentation. What is even more convincing than a reorganization of the most important part of nonparametric statistical procedures is a critical discussion of their merits. This is also taken care of in the book under review: the authors mediate in an illuminating way about the positive and negative sides of the established methods and approaches, and they consider the difficulties arising in the applications of the theory.

It has been said before that the book was conceived as an introduction to nonparametric procedures in "simple situations". That does not mean that the book is easy to read, but it certainly can be read without too much probabilistic background. Chapter 1 on the concepts of statistical inference and the Binomial distribution starts with the definition of the latter and explains the notions of estimator, consistency, sufficiency, minimum variance etc., mainly using the special class of Binomial distributions. In the following chapters the one and paired sample inference is treated: again for the Binomial distribution (Chapter 2), but also based on rank tests (Chapter 3) and randomization methods (Chapters 4 and 6); for location (Chapter 5) and in the framework of Kolmogorov and Smirnov (Chapter 7). Chapter 8 on asymptotic relative efficiency appears to be of more *theoretical* importance. Here the intuition requires more mathematical precision, simply since in general asymptotic concepts and procedures can hardly be understood unless one explicitly computes the estimates, using paper and pencil. Again the reader is invited to do the necessary work on the basis of the 90 problems posed at the end of the chapter.

In summary we are ready to state: this is an exceptional textbook, designed for a large variety of readers, containing a vast offer of intuitive ideas handled by two masters of the craft who mean what they say, when they suggest that in statistics conveying concepts can be more useful than "worrying about rigor".

H. Heyer, Tübingen

Moeschlin, O., und D. Pallaschke: Game Theory and Mathematical Economics. North-Holland, Amsterdam–New York–Oxford 1981, 463 p., US \$ 59.50.

Der vorliegende Sammelband enthält die Abhandlungen eines 7.–10.10.1980 in Hagen (Fernuniversität) und Schloß Birlinghoven bei Bonn (GMD) stattgefundenen, hervorragend besetzten – die Liste der Teilnehmer enthält u.a. die Namen K. Fan, W. Hildenbrand, J. und M. Lós, B. Peleg R.T. Rockafellar und L. Shapley – Symposiums. Die 43 Arbeiten sind in vier Gruppen (Game Theory, Mathematical Economics, Fixed-Point- und Optimization Theory, Measure Theoretic Concepts and other Tools) angeordnet. Sie wenden sich an Leser, die auf diesen Gebieten der mathematischen Ökonomie forschend tätig sind.

K. Jacobs, Erlangen