

ABSTRACT

TUTORIAL PROGRAMS IN NONPARAMETRIC STATISTICS FOR MARKETING RESEARCH

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INTRODUCTION

While the need for student comprehension of non-parametric methods is clear, the teaching of such procedures in any introductory marketing research class is often quite restricted. We present here a sample of microcomputer software which is intended to address the problem. The programs described here offer tutorial-type instruction in addition to computational capability. That is, each program enables the user to learn (or review) basic principles prior to, or in conjunction with, standard nonparametric data analysis.

Preparation of these materials was motivated largely by the desire to strengthen the linkage between undergraduate courses in statistics and marketing research. In this respect, our effort reflects the continuing concern of business school faculty with the development and maintenance of mechanisms to integrate courses across the curriculum. Too often students view courses as independent of each other rather than as interrelated and cumulative

The authors' collective experience in teaching statistics and marketing research has led to the following set of observations -- all of which bear on the difficulty of maintaining continuity between the two courses and establishing an appropriate mode and level of instruction:

1. The range of quantitative aptitude among students of basic statistics is quite broad,
2. Many (most?) business students have difficulty mastering core statistical procedures, and as a consequence dislike and disdain statistically-oriented topics,
3. The antipathy of students interferes with comprehension and retention of statistical principles (students tend to focus on survival rather than mastery),
4. For students of marketing research, the problem of retention is exacerbated by the time lag (frequently several terms) between completion of an introductory statistics course and enrollment in marketing research,
5. Marketing research instruction is hampered by low average and high variance in student statistical skills,
6. Marketing research texts tend to give only cursory coverage to the details of nonparametric procedures,

7. Single-term statistics courses often ignore nonparametric topics.

OBJECTIVE

It is in this context that we undertook the development of our statistical software package -- not as a remedy for all of the above-mentioned problems, but rather as a resource which could:

1. Enhance the capacity of marketing research instructors to address nonparametric analysis without the need to allocate limited class time to technical details,
2. Enable the research student to gain an understanding of the theoretical underpinnings of nonparametric analysis without reliance on research texts (which tend to be short on theoretical justification and technical detail) or complete recall of an earlier course in basic statistics,
3. Promote the student's ability to set his/her own pace in building an appropriate statistical foundation of nonparametric procedures,
4. Exploit student interest in microcomputers as an instructional tool and learning aid,
5. Provide easy-to-use computational routines for simple nonparametric data analysis.

THE ROUTINES

We have assembled a menu of nonparametric routines which includes treatment of Spearman's Rho, Kendall's Tau, the Wilcoxon, and the Sign-Rank Test. Also included is a utility routine which will enable the user to build and revise data files.

Students using the programs are required to make choices of: (a) one of the four nonparametric routines, (b) a print speed to appropriately pace the instruction, and (c) the full tutorial or statistical computation only. Additionally they are frequently asked for evidence of comprehension or challenged to produce elements of the analyses before they are displayed by the routine.

An attempt has been made to clearly demonstrate the nature of the relevant sampling distribution and to note its role in establishing "statistical significance". As a consequence display runs of the routines are too lengthy to be included in this abstract. An illustrative run highlighting the Spearman's Rho tutorial is available upon request.