

Editorial

THE PURPOSE OF STATISTICAL SCIENCE

With this inaugural issue of *Statistical Science*, the Institute of Mathematical Statistics launches what we hope will be a useful and exciting new journal. The field of statistics is in a state of rapid growth and expansion. As a result, both the developers of new statistical methodology and the statisticians who apply this methodology to substantive areas are necessarily becoming relatively more and more specialized. A central purpose of *Statistical Science* is to convey the richness, breadth, and unity of the field by presenting the full range of contemporary statistical thought at a modest technical level accessible to the wide community of practitioners, teachers, researchers, and students of statistics and probability.

The scientific journals of the IMS, *The Annals of Statistics* and *The Annals of Probability*, together with their predecessor, *The Annals of Mathematical Statistics*, have distinguished themselves as the premier research journals of their type in the world. With the publication of *Statistical Science*, the IMS introduces a journal that is designed to complement the *Annals* by coordinating, integrating, and explicating important current statistical research. In line with this goal, the journal will publish articles describing influential new methodological and theoretical topics, reviews of substantive areas of scientific research with promising statistical applications, evaluations of research papers and books in diverse branches of statistics and probability, and discussions of classic articles with commentary on their impact on contemporary thought and practice. The journal will also publish articles on the history of statistics and probability, articles on teaching and educational programs, and interviews with distinguished statisticians and probabilists.

The editors would welcome the suggestions of readers regarding specific articles or types of articles that they would like to see in *Statistical Science*, as well as their comments and views regarding the articles in this issue and in future issues.

ORIGINS

This journal exists largely because of the efforts of one person, Professor Ingram Olkin of Stanford University. It was he who first realized the importance of a new journal of this type both to the field of statistics and probability and to the IMS, and it was his idea that the IMS should establish such a journal. He has worked tirelessly and creatively during the past few years to bring it into existence. Everyone who shares our belief in the usefulness of *Statistical Science*, or

enjoys some of the articles that we publish, owes Professor Olkin a debt of gratitude for his vision and his persuasive talents.

During the years of planning, designing, developing, publicizing, and ultimately producing *Statistical Science*, we have also had the enthusiastic help and unfailing support of Prem K. Goel as Managing Editor of the IMS, Jose L. Gonzalez as Business Manager, and Bruce E. Trumbo as Treasurer. Without their help and support, the publication of *Statistical Science* might have been delayed for several years and possibly might never have occurred. Finally, we are pleased to acknowledge the kind support of Oscar Kempthorne as President of the IMS during 1984-1985.

IN THIS ISSUE

The article by D. A. Freedman and W. C. Navidi clearly indicates that the application of statistical methodology is still as highly controversial as ever. In a famous court case following the 1980 Census (*Cuomo v. Baldrige*, Southern District of New York), the state and city of New York filed suit against the U. S. Bureau of the Census. The plaintiffs claimed that the census results should be adjusted for the undercount; that is, for the different proportions of the population missed by the census in different parts of the nation. Freedman testified as an expert witness for the defense in that case, which was still undecided in October 1985. In their article, Freedman and Navidi criticize some of the methodology that had been proposed as a possible basis for such adjustments by statistical experts for the plaintiffs. Their article is followed by lively comments from several statisticians, including Joseph B. Kadane and Eugene P. Ericksen, the developers of the Bayesian regression methodology discussed in the article, and Kirk M. Wolter, Chief of the Statistical Research Division, Bureau of the Census. As Wolter states, most statisticians should find the article by Freedman and Navidi to be "informative, amusing, and provocative."

B. Efron and R. Tibshirani present an extensive review of the bootstrap methodology developed by Efron for assessing statistical accuracy based on repeated random resampling from the empirical distribution function of a given random sample. Bootstrap techniques have attracted widespread interest throughout the world of statistics during the past few years. J. A. Hartigan, who was an early advocate and creator of some statistical methods using random subsamples of an original sample, serves as a discussant.

L. Le Cam tells the story of the central limit theorem with special emphasis on the year 1935 when both

William Feller and Paul Lévy independently published major papers attacking the same problem in different ways. As Le Cam points out in his article, “Lévy complained to the end of his life that he did not receive due credit for that work, all the credit for obtaining necessary conditions for the Central Limit Theorem being claimed by, and usually granted to, Feller.” Further comments about the protagonists and their methods are provided by Hale F. Trotter, J. L. Doob, and David Pollard.

Seymour Geisser uses the occasion of the publication of *The Collected Works of George E. P. Box* to present his personal broad-ranging review of Box’s philosophy of statistical inference and modeling and his published contributions. We invited Professor Box to comment on this article, but he told us that he felt he had already said what he had to say on these topics and was now busy working on new things.

Christian Genest and James V. Zidek present a critical review of research on the problem of aggregat-

ing the opinions of two or more experts when these opinions are expressed as probabilities. This problem has been studied by statisticians, philosophers, behavioral and social scientists, decision analysts, and mathematicians, among others, and Genest and Zidek include an extensive annotated bibliography. Five discussants comment on their presentation from differing perspectives.

Two special features of this issue are the transcriptions of tape-recorded conversations with David Blackwell and T. W. Anderson. It is hoped that these conversations convey a sense of the lives, accomplishments, and outlooks of these eminent scientists.

Finally, there is an essay describing a young graduate student’s discovery of a copy of the first issue of *The Annals of Mathematical Statistics* and surveying its contents.

In summary, the articles in this issue of *Statistical Science* are intended to be readable and to be read. We hope that you will enjoy them.