



April 1986

1986: The 60th Birthday of WSS

## WASHINGTON STATISTICAL SOCIETY

# NEWSLETTER

### CALENDAR

April 9, Wednesday	Uncertainty in Expert Systems
April 10, Thursday	Resampling Inference from Survey Samples
April 16, Wednesday	Some Exploratory Techniques for Detecting Outliers
April 17, Thursday	Statistical Software
April 17, Thursday	Topics in Benefit Cost Analysis of Data Programs
April 22, Tuesday	On the Use of the Bootstrap to Obtain Standard Errors of Forecasts
May 29, Thursday	WSS Annual Dinner at Hogate's

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WSS Needs You - By Mary Grace Kovar, President

The Washington Statistical Society depends on members for all activities. There is no paid staff. While this has the disadvantage of requiring work from the members, it has the advantage of lots of people being involved and getting to know one another.

We need more of you to become involved. Among the needs are:

- o People to work on strategic planning committees to help guide the policies of the Society over the next few years.
- o People to work on program committees to organize the scientific sessions.
- o People to be doing the planning for the ASA sesquicentennial meeting that will be held in Washington in 1989.
- o A person to work next year with Rich Allen to take over as WSS Secretary in the Summer of 1987.
- o A person to be the liaison with the Washington Academy of Sciences.

If you would like to help, we'd like to have you. Send me a note with your name, address, and telephone number. Tell me if there is something you are especially interested in. And remember, no experience is needed.

### WASHINGTON STATISTICAL SOCIETY PROGRAM CHAIRS

#### Agriculture & Natural Resources

Fred A. Vogel 447-3638  
Gary Liberson 363-7140

#### Economics

Bette S. Mahoney 697-5655  
Wray Smith 528-2772

#### Physical Sciences and Engineering

Seymour Selig 334-3522  
Nozer Singpurwalla 676-7515

#### Public Health & Biostatistics

Jai Choi 436-7047  
GooLoo Wunderlich 245-2100

#### Social & Demographic Statistics

Lee-Ann C. Hayek 357-1587  
Donald J. Hernandez 763-7950

#### Statistical Computing

Harry Foxwell 872-8058  
Ron Steele 475-3483

#### Short Courses

Virginia deWolf 275-5801  
Josefina Lago 251-1500  
Andrew A. White 436-7022

#### Methodology

Cathryn Dippo 523-1874  
Mary Mulry-Liggan 763-7140

#### Newsletter Editor

Julia Oliver 252-5744

#### Employment

Evelyn Kay 331-1153

## PROGRAM ABSTRACTS

TOPIC: Uncertainty in Expert Systems  
SPEAKER: William Eddy, Carnegie-Mellon University  
CHAIR: Nozer Singpurwalla, George Washington University  
DATE AND TIME: Wednesday, April 9, 1986; 12:30 - 2:00 p.m.  
LOCATION: George Washington University Marvin Center, 800 21st St, N.W., Room 413  
ABSTRACT: An expert system consists of a collection of rules of the form "if A, then B" together with a procedure for combining them. Recently there has been a great deal of interest in introducing uncertainty into the rule of combination. This talk will review some of the previous procedures and will describe a new method based on belief functions, together with Dempster's Rule of Combination.

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TOPIC: Resampling Inference from Survey Samples  
SPEAKER: J.N.K. Rao, Carleton University  
DATE AND TIME: Thursday, April 10, 1986; 1:30 - 3:00 p.m.  
LOCATION: GAO Building, Room 2734, 441 G Street, N.W. (Call 523-1760 to arrange for building entry.)  
ABSTRACT: Recent work on the jackknife, balanced half-sample replication and the bootstrap methods of variance and confidence interval estimation from stratified samples is reviewed. Edgeworth expansions and third moment matching are used to justify the bootstrap. Extensions of the bootstrap to unequal probability sampling without replacement, multi-stage and multi-phase sampling are obtained. Results of empirical studies on bias and stability of variance estimators and confidence interval coverage probabilities and lengths are reported.

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TOPIC: Some Exploratory Techniques for Detecting Outliers  
SPEAKER: David C. Hoaglin, Harvard University  
DATE AND TIME: Wednesday, April 16, 1986; 2:00 - 3:00 p.m.  
LOCATION: GAO Building, Room 2736, 441 G Street, N.W., (Call 523-1760 to arrange for building entry.)  
ABSTRACT: Exploratory data analysis offers a simple rule for identifying, as "outside," possible outliers. With a number of related rules it shares such advantages as being able to detect a substantial number of outliers without specifying the number in advance and avoiding adverse effects of the outliers themselves. Straightforward calculations show that in large samples of well-behaved data about 0.7% of the observations (on average) will be "outside." Simulation studies reveal that this is a serious underestimate in small samples, and these results yield a good detailed picture of how the rule performs. The talk will examine the exploratory rule and several related rules, the motivation behind them, and several measures of their performance.

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PROGRAM ABSTRACTS (Continued)

TOPIC: Statistical Software  
SPEAKERS: Brian Greenberg, Bureau of the Census and James Filliben, National Bureau of Standards  
CHAIR: Andrew White, National Center for Health Statistics (NCHS)  
DISCUSSANTS: David Pierce, Federal Reserve Board and Steven Botman, NCHS  
DATE AND TIME: Thursday, April 17, 1986; 1:30 - 3:30 p.m.  
LOCATION: NCHS, Room 1-23, 3700 East-West Highway, Hyattsville, MD  
ABSTRACT: The first speaker presents the SPEER system (Structured Program for Economic Editing and Referrals) developed at the Census Bureau to meet the editing and imputation of economic survey data. This system can process records either in batch mode or on-line, interactively for referral cases. In the interactive mode, a subject-matter specialist will converse with the system on a record-by-record basis to augment or over-ride rules residing in the system.

The second speaker discusses the implementation of an expert subsystem into an an existing graphics/data analysis software system (DATAPLOT). Two facets of the expert subsystem will be examined: (1) a consultant-style mode which offers expert guidance for thoroughly carrying out a data analysis; and (2) a data-interpretation mode which applies tests to data and formulates rigorous statistical conclusions. The talk will include output from an application of the expert subsystem to the typical data set.

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TOPIC: Topics in Benefit Cost Analysis of Data Programs  
SPEAKER: Bruce Spencer, Northwestern University  
CHAIR: Edwin Goldfield, Committee on National Statistics  
DISCUSSANT: Michael Cohen, University of Maryland  
DATE AND TIME: Thursday, April 17, 1986; 12:30 - 2:00 p.m.  
LOCATION: GAO, Room 2736, 441 G Street, N.W., (Call 523-1760 to arrange for building entry)  
ABSTRACT: How much ought to be spent on statistical programs such as the decennial census is an important and difficult question. The use of benefit cost analysis is difficult but feasible as demonstrated by a benefit-cost analysis of a coverage improvement program for the 1980 Census. Benefit-cost analysis of data programs involves looking at: (1) the relationship between data cost and data quality, (2) the relationship between data quality and outcomes of actions based on the data, and (3) the values of the outcomes. The talk will consider all three issues but will focus on the second. The implications of non-optimal data usage for optimal data quality will receive particular emphasis.

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## PROGRAM ABSTRACTS (Continued)

TOPIC: On the Use of the Bootstrap to Obtain Standard Errors of Forecasts  
SPEAKER: David Findlay, Bureau of the Census  
CHAIR: Nancy Kirkendall, Energy Information Administration (EIA)  
DISCUSSANT: Douglas Hale, EIA  
DATE AND TIME: Tuesday, April 22, 1986; 12:30 - 2:00 p.m.  
LOCATION: Room GJ-015, Forrestal Building, 1000 Independence Ave., S.W. (Please bring copy of announcement for admission to building)  
ABSTRACT: The Bootstrap is a resampling procedure sometimes employed to obtain estimates of variability of a quantity associated with a fitted statistical model when analytical variance formulas are lacking or are inapplicable because of limited sample size. Recently, Freedman and Peters recommended the use of the Bootstrap to estimate the standard errors associated with forecasts from an autoregression fit to a short time series. Usually analytic formulas are not available to describe the Bootstrap estimator. For this forecast-error problem, however, we show that an approximate formula can be derived which reveals the Bootstrap to be of limited utility. We also show that a proposed method of implementing a Bootstrap for conditional forecast errors leads to an interesting characterization of stationary Gaussian time series. Most of this talk will be very elementary requiring only familiarity with simple linear regression.

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## ANNOUNCEMENTS

### Public Use Tape for the 1982 New Beneficiary Survey (NBS)

The Social Security Administration's Office of Research, Statistics, and International Policy announces the availability of a public use data tape for the 1982 New Beneficiary Survey (NBS). The NBS interviewed 18,599 persons in October-December 1982, and linked their responses to administrative data on benefits. The NBS contains representative samples of persons who first received Social Security benefits in mid-1981 as retired workers, as disabled workers, as wives, widows, divorced wives, and surviving divorced wives. The NBS also contains a representative sampling of persons aged 65 and over who were entitled to Medicare benefits but who had not yet received Social Security cash benefits. The survey questionnaire contains the following topics: household composition, employment history, job characteristics of the current, last and longest job, other employment not covered by social security, health, sources of income and amounts of income received in the last three months, asset holdings and income from assets, marital history, and child care. First findings of these data are presented in the Social Security Bulletin beginning in January 1985.

Write to Joel Packman, Office of Research, Statistics, and International Policy, Social Security Administration, Operations Building, Room 2-B-2, 6401 Security Boulevard, Baltimore, Maryland 21235; or phone Joel Packman at (301) 594-0348. The data set costs \$150 and is available with documentation on one reel of computer tape.

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## ANNOUNCEMENTS (Continued)

### WSS Election

The election of new officers for the 1986-1987 program year will be conducted by ballot in a special mailing in May. The following have agreed to run for office:

#### For Vice-President and President-Elect:

Nancy Kirkendall, Energy Information  
Administration (EIA)  
Charles R. Mann, Charles R. Mann, Inc.

#### For Methodology Program Chair:

William Winkler, EIA  
Melanie Martindale, Denfense  
Manpower Data Center

#### For Representatives-at-Large: (two to be elected)

Catherine Dipbo, Bureau of Labor Statistics  
David McMillian, Bureau of the Census  
John Czajka, Mathematica  
L. J. Wei, George Washington University

#### For Treasurer:

Bennie Clemmer, Social Security  
Administration

Candidates other than these may be nominated by petition of at least forty (40) members of WSS, provided that such a petition is received by the Nominations and Elections Committee at least two weeks before balloting. Any petitions must be received by Terry Ireland, 10023 Menlo Avenue, Silver Spring, MD 20910, by April 15, 1986.

### Conference on Design of Experiments

The Delaware Chapter of the American Statistical Association will sponsor a conference on the design of experiments on Friday, April 25, 1986. It will be held at the John M. Clayton Hall on the campus of the University of Delaware, Newark, Delaware. The purpose of the conference is to expose statisticians and other interested persons to current developments in the design of experiments. The conference will include papers on: Design of Experiments by Raymond H. Meyers, VPI & SU; Taguchi Methods - Strengths and Weaknesses by George E. P. Box, Wisconsin; Clinical Trials, by Richard Simon, National Cancer Institute; Training for Design of Experiments by Thomas Boardman, Colorado State University; On Split Plot and Repeated Measures Designs by Dallas Johnson, Kansas State University; and Designs for Conjoint Analysis by Wayne Desarbo, University of Pennsylvania. Janet Norwood, Bureau of Labor Statistics, is the featured luncheon speaker. The \$85 conference fee includes the cost of the luncheon. For registration information contact: Mark Scott, Steuart Pharmaceuticals, Wilmington, DE 19897, Telephone (302) 575-8495.

### Washington Statistical Society Annual Dinner

The WSS Annual Dinner will be held Thursday, May 29, 1986 at Hogate's Resturant at 9th and Maine Street, S.W. The menu features a choice of entrees (crab-stuffed flounder or broiled top sirloin), soup, salad, desert and coffee or tea. Cost of the dinner is \$18.00 per person. Registration forms will appear in the May Newsletter.

WSS Mugs WSS Mugs WSS Mugs WSS Mugs WSS Mugs WSS Mugs

Many members may not realize that WSS coffee mugs are available. These very attractive blue mugs, which bear the Washington Statistical Society name and logo, make interesting guest cups for the office and might be conversation starters at office or home meetings. Mugs are available for \$5.00 each through Charles Mann and Associates (telephone: 202-466-6161).

EMPLOYMENT COLUMN

Deadline for inserting notices  
is five (5) weeks before the  
publication date.

Send notices and requests to:  
Evelyn R. Kay  
520 22nd Street, N.W.  
Washington, D.C. 20037 202/331-1153

JOB OPENINGS

SAS Instructor. Thirty-year old Baltimore based firm seeks an experienced programmer/analyst who is proficient in the SAS to instruct technical staff and end users. A minimum of 3 years of professional experience and exposure to IBM on Honeywell mainframe shops is required. Salary to \$40K. For more information call Abby Cantwell at 532-7800 or send your resume to her at: Clark-Magar Associates, Inc., 109 Park Washington Court, Falls Church, VA 22046



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