



WASHINGTON  
STATISTICAL  
SOCIETY

# WSS NEWS

December 1994

## Join Us for our Annual Holiday Party

Make your plans now to attend the WSS 1994 Holiday Party scheduled for Wednesday, December 14, 1994 at 6:00 - 8:00 PM. This is a special Holiday Party where we will bid Barbara Bailar Bon Voyage. The location of the Party has changed to the Hyatt-Regency Washington on Capital Hill, 400 New Jersey Avenue NW, Washington, DC. A pasta bar, wheel of baked brie with french bread, crudite (vegetables with dip) and cookies will be served. There will also be a cash bar. For more information about reservations, see the flyer in this newsletter. Hope to see you there!

<b>WSS Seminars</b>	
(All events are open to any interested persons)	
<b>December</b>	
5 Mon.	Huge Data Sets, Computational Feasibility, and High Performance Computing
6 Tues.	Touchtone Data Entry Systems for Establishment and Household Surveys
13 Tues.	Extensions of the Rao-Shao Estimator of Imputation Variance to Finite Population Sampling (Latest Presentation in Methodology Seminar Series on Variances for Complex Surveys)
15 Thurs.	A Simulation Study of Methods for Estimating Vaccine Efficacy
15 Thurs.	Limited Information Likelihood Analysis for Survey Data (Second in the Series on Statistics with Non-Precise Data)
<b>January</b>	
11 Wed.	The Measurement of Race and Ethnicity

**Call (703) 803-8109 for up-to-date information.**

## Announcements

### **\$2 Increase in WSS Dues**

After considerable discussion, a decision was made at the September board meeting to increase WSS dues from \$10 to \$12 per year. It was felt that after several years without an increase, it was necessary at this time. However, the Board plans to examine and implement several cost saving recommendations this year, thus holding future dues increases in check. It should be noted that there are other chapters with annual dues of \$12; considering the range of activities sponsored by WSS, the dues are quite a value.

### **Electronic Distribution of Newsletter**

WSS is considering distributing the monthly newsletter and schedule via electronic means. Electronic distribution offers several advantages to the present surface mail procedures, primarily much improved timeliness of delivery at significantly lower postal and administrative cost. Participation in the electronic delivery would be voluntary, and should lead to reduced cost and lower member dues.

Those interested in electronic delivery could choose between receiving the newsletter via electronic mail (in a text format), or could retrieve the newsletter via an Internet Gopher or Mosaic utility. No surface mailing would be sent to those who choose to receive the newsletter electronically. Also, WSS will restrict the use of the electronic mailing list to the newsletter or related announcements. The mailing list will not be distributed.

If you are interested in receiving the WSS Newsletter and schedule via electronic means, please send a note to Vince Massimini, svm@mitre.org. If you wish to receive the newsletter via email, include your Internet mail address. (Recall that this may be different than your address internal to your organization.) If you

would prefer to retrieve the newsletter via Gopher or Mosaic, then indicate so. Any general comments or suggestions would be welcome. If response is favorable, we could start electronic distribution in a few months.

Thanks for your support. We believe that this initiative will result in much better service to WSS members at a lower cost to the Society.

### **Science Fair 1995**

Volunteers are now being solicited to represent the Washington Statistical Society as judges in local area Science Fairs next spring. Since 1986, WSS has provided special awards at these fairs to students whose projects demonstrate excellence in statistical theory or applications. Those who have participated in this activity have very much enjoyed the opportunity to interact with these students and to observe the widely diverse projects which are presented. The WSS sponsors awards at fairs in Northern Virginia, suburban Maryland and the District of Columbia. The fairs are held on a Saturday morning in mid-March to mid-April. The only time required is one Saturday morning, plus one weekday lunchtime meeting to discuss judging strategy and to distribute the awards to be given out at each fair. If you would like to be a WSS science fair judge, or if you would like additional information about this activity, please contact Lee Abramson at (301) 415-6180.

### **Quantitative Literacy**

The 1994-95 Quantitative Literacy (QL) year began with a seminar on October 12. We received several responses from those in attendance to participate in QL activities in the upcoming year. If you were unable to attend the seminar and would like to volunteer to participate in Quantitative Literacy activities, please fill out the form on page 13.

## Program Abstracts

- Topic:** Huge Data Sets, Computational Feasibility, and High Performance Computing
- Speaker(s):** Edward J. Wegman, George Mason University
- Chair:** James E. Gentle, George Mason University
- Date/Time:** Monday, December 5, 1994, 12:30-2:00 PM
- Location:** BLS Training Center, Postal Square Building, Suite G-440, Room 10, 2 Massachusetts Avenue, NE, Washington, DC (Red Line -- Union Station). Enter at First Street.
- Sponsor:** Statistical Computing Section
- Abstract:** Recently, Huber (1994) offered a taxonomy of data set sizes ranging from tiny ( $10^2$  bytes) to huge ( $10^{10}$  bytes). This taxonomy is particularly appealing because it quantifies the meaning of tiny, small, medium, large, and huge. Indeed, some investigators consider 300 small and 10,000 large, while others consider 10,000 small. In Huber's taxonomy, most statistical and visualization techniques are computationally feasible with tiny data sets. However, with larger data sets, computers run out of computational horsepower and graphics displays run out of resolution fairly quickly. In this paper, we discuss aspects of data set size and computational feasibility for general classes of algorithms in the context of CPU performance, memory size, hard disk capacity, screen resolution and massively parallel architectures. We discuss some strategies such as recursive formulations, which mitigate the impact of size. We also discuss the potential for scalable parallelization, which will mitigate the effects of computational complexity.

## Program Abstracts (Cont'd)

- Topic:** Touchtone Data Entry Systems for Establishment and Household Surveys
- Speaker(s):** Ruth McKay, Bureau of Labor Statistics  
Richard Clayton, Bureau of Labor Statistics
- Discussant(s):** Bill Nicholls, Bureau of the Census
- Chair:** Catherine Burt, National Center for Health Statistics
- Date/Time:** Tuesday, December 6, 1994, 12:00-1:30 PM (Note special time)
- Location:** BLS Cognitive Lab, Postal Square Building, Room 2990, 2 Massachusetts Avenue, NE, Washington, DC (Red Line -- Union Station). Enter at Massachusetts Avenue and North Capitol Street.
- Sponsor:** Data Collection Methods Section
- Abstract:** Touchtone data entry (TDE) is fast becoming a viable alternative for collecting data from survey respondents. It is particularly useful in establishment surveys because it provides timely, low-cost data delivered at the respondent's convenience. The advantage of TDE for household surveys is that it provides a low-cost means of increasing the sample size. The training of household respondents, however, is problematic. In both cases, special procedures are needed to maintain respondent cooperation. Recent experience with TDE at the Bureau of Labor Statistics will be used to illustrate these issues.

## Program Abstracts (Cont'd)

- Topic:** Extensions of the Rao-Shao Estimator of Imputation Variance to Finite Population Sampling (Latest Presentation in Methodology Seminar Series on Variances for Complex Surveys)
- Speaker:** Robert E. Fay, U.S. Bureau of the Census
- Chair:** Michael P. Cohen, National Center for Education Statistics
- Date/Time:** Tuesday, December 13, 1994, 12:30-2:00 p.m.
- Location:** BLS Cognitive Lab, Postal Square Building, Room 2990, 2 Massachusetts Avenue, NE, Washington, DC (Red Line -- Union Station). Enter at Massachusetts Avenue and North Capitol Street.
- Sponsor:** Methodology Section
- Abstract:** Rao and Shao (1992) derived a modification of the jackknife to capture variance due to hot deck imputation under appropriate conditions. Fay (1993, 1994) and others have provided a number of extensions of this approach. This talk focuses on modifications required to the Rao-Shao estimator to obtain a consistent variance estimate for sampling from finite populations, including the instance of certainty (take-all) strata that are subject to nonresponse. Monte Carlo evidence will be presented as to the efficacy of this approach.

**\* \* \* Note from the WSS NEWS Editors \* \* \***

Items for publication in the February 1995 WSS NEWS should be submitted no later than December 27, 1994. FAX items to:

Hattie Ramseur or Theresa Hallquist  
FAX: (202) 586-0018

## Program Abstracts (Cont'd)

- Topic:** A Simulation Study of Methods for Estimating Vaccine Efficacy
- Speaker:** George F. Reed, National Institute of Allergy and Infectious Diseases
- Chair:** Sally Hunsberger, National Heart, Lung and Blood Institute
- Date/Time:** Thursday, December 15, 1994, 1:30-2:30 (Note special time)
- Location:** Conference Room C, Executive Plaza North, 6130 Executive Blvd., Rockville, MD
- Sponsor:** Public Health and Biostatistics Section
- Abstract:** We consider large randomized placebo-controlled vaccine trials designed to estimate efficacy. Efficacy is a function of the incidence of disease in the randomized groups, and there are a number of ways to estimate incidence. The three types of estimators considered are 1) the person-time estimators, 2) cumulative risk estimators, and 3) proportional hazards. To study the properties of these estimators, a computer simulation of a vaccine trial was constructed. The features of the simulation included staggered recruitment with different follow-up times for individuals, variable incidence of disease through the course of the trial, random withdrawals, and group-specific exposure and disease probabilities. Results of the simulations illuminate the strengths and weaknesses among the estimators considered and reveal which are optimal under the conditions simulated.

## Program Abstracts (Cont'd)

**Topic:** Limited Information Likelihood Analysis for Survey Data (Second in the Series on Statistics with Non-Precise Data)

**Speaker:** Raymond L. Chambers, The Australian National University

**Chair:** Sandra A. West, Bureau of Labor Statistics

**Date/Time:** Thursday, December 15, 1994, 12:30-2:00 p.m.

**Location:** BLS Cognitive Lab, Postal Square Building, Room 2990, 2 Massachusetts Avenue, NE, Washington, DC (Red Line -- Union Station). Enter at Massachusetts Avenue and North Capitol Street.

**Sponsor:** Methodology Section

**Abstract:** In many applications sample survey data are analyzed with the aim of not just summarizing the characteristics of the finite population values that underlie the survey data, but also with the aim of modeling the stochastic process that gave rise to these values. This "analytic" use of survey data is commonplace in many social sciences, especially sociology and economics. However, it has not received much attention from survey statisticians, who have focused most of their work on the "enumerative" aspects of survey inference, where the primary goal is estimation of well defined population quantities, for example, totals, means, and ratios. A notable exception is the recent book by Skinner, Holt, and Smith (1989), which provides an overview of developments, up to about the mid 1980's, in the area of complex survey data.

A framework for maximum likelihood analysis of complex survey data has recently been proposed in Breckling et al (1994). Under this approach, inference about unknown parameters must take into account the nature and possible informativeness (non ignorability) of the sample scheme and of survey nonresponse. In turn, this implies that if selection probabilities depend solely on known design variables, then they provide no information for inference and can be ignored. An important situation where this is not the case is where survey design variables are unavailable to the analyst. Typically referred to as the "secondary analysis" problem, it is characterized by the fact that the selection probabilities are informative and must be included in the likelihood analysis. Through use of a simple motivating example I will show that the Breckling et al (1994) framework can be applied in this case as well. Furthermore, it does not lead to the paradoxical results that are observed when alternative "pseudo likelihood" and "weighted likelihood" methods are applied to this example.

## Program Abstracts (Cont'd)

- Topic:** The Measurement of Race and Ethnicity
- Speakers:** Katherine Wallman, Office of Statistical Policy  
Napiel McKeny, Bureau of the Census  
Clyde Tucker, Bureau of Labor Statistics
- Chair:** Mary Grace Kovar, National Opinion Research Center
- Date/Time:** Wednesday, January 11, 1995, 12:30-2:00 PM
- Location:** Bureau of Labor Statistics Training Center, Ground Floor--Postal Square Building, 2 Massachusetts Ave NE (Red Line to Union Station). Enter on First Street.
- Sponsor:** Data Collection Methods Section
- Abstract:** The Federal statistical systems follow the guidance on the classification of race and ethnicity that were published in OMB Circular 15. The Office of Statistical Policy at OMB is currently reviewing the classification of race and ethnicity to revise those guidelines, now almost 20 years old, using hearings and research so that all points of view can be heard, all uses identified, and the relevant information brought to bear. This seminar will provide a unique opportunity for the Washington statistical community to learn about this important work in progress and to provide input.

## Announcements

### Nominations Sought for Shiskin Award

Nominations are invited for the annual Julius Shiskin Award for Economic Statistics. The award, established in 1979 by the Washington Statistical Society and co-sponsored by the National Association of Business Economists, is given in recognition of unusually original and important contributions in the development of economic statistics or in the use of economic statistics in interpreting the economy. The contributions could be in statistical research, in the development of statistical tools, in the application of computer techniques, in the use of economic statistical programs, in the management of statistical programs, or in developing public understanding of measurement issues, to all of which Mr. Shiskin contributed. Either individuals or groups in the public or private sector can be nominated.

The award will be presented with an honorarium of \$500 at the Washington Statistical Society Annual Dinner in June 1995. A nomination form may be obtained by writing to the Julius Shiskin Award Committee, American Statistical Association, 1429 Duke Street, Alexandria, VA 22314-3402. Completed nominations must be received by April 1, 1995.

Richard D. Allen and Joel Popkin won the 1994 Shiskin Award. Richard D. Allen was recognized for his contributions to the application of statistics to agricultural economics and to improving the quality, integrity, and timeliness of agricultural statistics. Joel Popkin was given the award for his contributions to the field of economic statistics, especially in the development of price indexes and other gauges of inflationary pressures.

Previous winners include: Barbara Bailar for her contributions to modernizing the Census Bureau's statistical programs, especially her work in undercount and non-sampling error in the Decennial Census; Allen H. Young for his

leadership in forging statistical tools that contribute substantially to the ability to analyze the U.S. economy and for imaginative management of a major statistical agency through critical times; the late Stephen Taylor for his work in developing the U.S. Flow of Funds Accounts and using them to interpret the behavior of financial markets and Carol A. Carson for her leadership in developing and refining the economic statistical database of the U.S. and for her contributions to the development of the revised U.S. System of National Accounts.

For further information, contact Dr. Howard Hogan, Julius Shiskin Award Committee Secretary, Services Division, U.S. Bureau of the Census, Room 2641-3, Washington, DC 20233-6500 or call at (301) 763-7003.

Martin Fleming  
Chair, Julius Shiskin Award Committee

### SIGSTAT Meetings

SIGSTAT, the Special Interest Group in Statistics for the Capital PC User Group and the Washington Operations Research and Management Science Council (WORMSC), will be sponsoring the following meetings. On December 14, 1994, there will be a demonstration of ResamplingStats, a simple programming language to implement resampling techniques. On January 11, 1995, the topic will be EViews, the latest version of the econometric package MicroTSP running in the Windows environment.

All meetings are scheduled from 12:30 PM to 1:30 PM in Room B-14, 1301 New York Avenue, NW. The building is located midway between the Metro Center and McPherson Square Metro stops. If this is your first SIGSTAT meeting, call Charlie Hallahan at (202) 219-0507 or e-mail to hallahan@ers and leave you name in order to gain entry into the building.

## Announcements

### Master's of Science in Statistics for Policy Analysis

The American University Department of Mathematics and Statistics in the College of Arts and Sciences proudly announces a new program to begin during the Fall 1995 Semester: Master's of Science in Statistics for Policy Analysis. Applications are now being accepted. Deadline is May 1 for Fall 1995 admission. Interested students may register as nondegree and take courses during the Spring 1995 Semester. Credits can then be transferred into the degree program. For more information, please contact The Department of Mathematics and Statistics of the American University at (202) 885-3120 or e-mail: mathstat@american.edu.

### Tools for Statistical Inference Course

The Division of Computer Research and Technology and the National Center for Biomedical Information at the National Institutes of Health is sponsoring a course, "Tools for Statistical Inference: Methods for Exploring Likelihood Functions and Posterior Distributions". The instructor will be Martin Tanner from the University of Rochester Medical Center. It will be held on December 19-22 from 9:00 AM to 4:00 PM. in Bldg. 12A, Room B51 on the National Institutes of Health, Bethesda, MD. (Medical Center Metro Stop). To register, call (301) 594-3278.

The purpose of this course is to provide an introduction to a variety of computational algorithms for Bayesian inference. The observed data methods are applied directly to the likelihood or to the posterior density. These include: Newton-Raphson, LaPlace's method, Monte Carlo and Metropolis methods. The data augmentation methods include: EM, Data Augmentation, Poor Man's Data Augmentation, and the Gibbs Sampler. All methods will be motivated and illustrated with

real examples. Participants should have preparation in mathematical statistics, multiple regression, logistic regression, Cox regression and some familiarity with Bayesian inference.

### The Joint Program in Survey Methodology Spring 1995 Semester

The University of Maryland-University of Michigan Joint Program in Survey Methodology announces its course offerings for the Spring 1995 semester.

Mathematical Statistics II	M,W 5:00-6:15
Applied Sampling	M,TH 6:30-7:50
Social & Cognitive Foundations of Survey Measurements	T,TH 5:00-6:15
Inference from Complex Surveys	W 4:30-7:10
Survey Management	W 4:30-7:10

For additional information, please contact The Joint Program in Survey Methodology at (301) 314-7911.

### The American University Spring 1995 Semester

The Department of Mathematics and Statistics at The American University announces its graduate course offerings for the Spring 1995 semester.

41.310 Linear Algebra	Mth 3:35-4:50
41.521 Intro. to Analysis II	Tth 5:20-6:35
42.502 Theory of Sampling	Tth 8:10-9:25
42.514 Statistical Methods	T 5:30-8:00
42.516 Design of Experiments	Th 5:30-8:00
42.522 Time Series Analysis	Tth 6:45-8:00
42.584 Intro. to Stochastic Proc.	MW 6:45-8:00
42.601 Adv. Probability & Stat	MW 5:20-6:35
42.640 Statistical Computing	Tth 5:30-6:35

For additional information, please contact The Department of Mathematics and Statistics at (202) 885-3120 or by e-mail at mathstat@american.edu.

## Announcement

### Joint Program in Survey Methodology

The Joint University of Maryland-University of Michigan Program in Survey Methodology is currently accepting registrations for a short course. On January 18-19, 1995, the JPSM will sponsor "Questionnaire Design", a short course presented by Nora Cate Schaeffer. Nora Cate Schaeffer is a Professor of Sociology at the University of Wisconsin-Madison with almost 20 years of experience in survey methodology and questionnaire design. The course is targeted at individuals who will be writing or reviewing survey questions or questionnaires. The course gives practical guidance to those who have written questionnaires but who are not familiar with research on question design, who are beginning to design questionnaires, and who use survey data but do not themselves design questionnaires.

The registration deadline is January 3, 1995. It will be presented at the Crystal City Marriott in Arlington, VA. Registration is \$350 for nonstudents and \$200 for fulltime students (with supervising faculty member signature). Participants will receive a notebook containing copies of course transparencies and text. Early registration is encouraged as JPSM short courses tend to fill up quickly. To request a registration form, call (800) 937-9320 or send E-Mail to JPSM@UMICH.EDU.

### New Course in Establishment Surveys

The USDA Graduate School will offer a course "Topics in Establishment Surveys" beginning January 19 from 6:00 - 8:00 PM for 10 weeks. Drawing on the materials from the International Conference on Establishment Surveys, key researchers will lead discussions in the area. For further information, please call Gabriela Sheppard at (202) 690-1425.

## Employment Column

As a service to local statisticians, *WSS News* provides notification of employment opportunities and description of those seeking employment here in the Washington, DC, area. Readers are encouraged to take advantage of this feature of the newsletter. The deadline for inserting notices is five (5) weeks before the publication date. Those interested should write or call: Bill Arends, USDA-NASS, Room 4133 South Building, Washington, DC 20250-2000, (202) 720-6812.

### Vacancies

#### Statistician

The Federal Bureau of Investigation seeks a Statistician to serve in the Office of Equal Employment Opportunity Affairs to assist in the analysis of complex data determined to weigh the impact of employment practices at the Bureau. Your duties will include determining the approach for collection and analysis of data from both within the Bureau and from related demographic characteristics and patterns of society and presenting and preparing reports in concise terms for non-technical personnel.

Qualifications include a Ph.D. in Statistics with experience in statistical analysis in personnel, employment, and administrative fields. Appointment is at the GS-14 level with salary range between \$59,022 and \$76,733 based on education, training, and work experience.

You must be a U.S. citizen and consent to a complete background investigation, polygraph, and drug test as a prerequisite for employment. Please submit a resume and other applicable material by December 30, 1994, to: The Federal Bureau of Investigation, Attn: Betty Israel, Staffing Unit, Room 6076, JEH Bldg., Washington, DC 20535.

## Employment Column

### Statistics Faculty Positions

Applications are invited for tenure track and temporary faculty positions in Statistics at The American University Department of Mathematics and Statistics. Appointments will be at the Assistant or Associate Professor level. Ph.D. is required. Responsibilities include teaching Multivariate Analysis, Linear Estimation, Sampling, or Statistical Computing. Consideration of applications will begin February 1. Send CV and 3 letters of reference to: Nancy Flournoy, Chair, Department of Mathematics and Statistics, The American University, 4400 Massachusetts Avenue NW, Washington, DC 20016-8050, e-mail: mathstat@american.edu.

### Statistician

Don Richards Associates/*Information Services Group*, a technical recruiting firm servicing the metropolitan DC area, is seeking Senior Statisticians with a SAS background. Qualified candidates should possess a BS in Statistics or Mathematics (MS is preferred). In addition, s/he should have at least 2 years related experience. Ideally, the candidate will have excellent communication and presentation skills, as well as a keen interest in modeling and SAS programming. Knowledge of Lotus and Excel is a plus. Candidates should submit resumes with salary history in confidence to: Roy F. Bombard, Don Richard Associates/*Information Services Group*, 7200 Wisconsin Avenue, Suite 700, Bethesda, MD 20895, FAX: (301) 907-0025.

### Statistician

The Texas Agricultural Experiment Station, Blackland Research Center is looking for a statistician for its Washington, DC location at the USDA-Soil Conservation Service (SCS). The qualifications are: advanced degree in Statistics with sample survey coursework or experience. The

salary is \$40's. The responsibilities are: provide statistical expertise in survey design, development, and analysis to evaluate the cost and effectiveness of SCS programs. The position duration is through December 1996 with possible permanent appointment.

Interested persons should submit a letter of application, resume, and names of at least three references to: Dr. C. Allan Jones, Resident Director of Research, Texas Agricultural Experiment Station, 808 East Blackland Road, Temple, TX 76502.

### Statistician and Survey Director

Mathematica Policy Research, Inc., a nationally recognized survey research organization, has immediate openings in its Princeton, NJ office.

**Statistician:** This position involves creating and implementing sample designs, including developing frames, calculating weights, imputing missing data, and performing methodological analysis. The successful applicant will have a Ph.D. in Statistics, or a Masters degree and at least five years of relevant experience.

**Survey Director:** This position involves managing all aspects of survey research projects including survey design, instrument development, specification of procedures, monitoring of expenditures and productivity, and preparation of reports. Survey experience in health services research, education, or clinical data collection is preferred. The position requires an advanced degree in the social sciences or equivalent and at least five years experience in directing large complex surveys.

Interested candidates should contact Linda Legge at (609) 799-3535, or write Mathematica Policy Research, Inc., P.O. Box 2393, Princeton, NJ 08543-2393.

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### WSS Program Chairs

<b>Agriculture &amp; Natural Resources</b> Carol House (202) 720-3895 John Herbert (202) 586-4360	<b>Economics</b> Linda Atkinson (202) 219-0505 Art Kennickell (202) 452-2247	<b>Methodology</b> Michael P. Cohen (202) 219-1917 Sandra West (202) 606-7384
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	<b>Data Collection Methods</b> Theresa DeMaio (301) 763-7331 Mary Grace Kovar (202) 223-6040 Roger Tourangeau (202) 223-6040	
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