



WASHINGTON
STATISTICAL
SOCIETY

WSS NEWS

April 1994

Curtis Jacobs Memorial Prize for Outstanding Statistics Project

The Curtis Jacobs Memorial Prize was established in 1991 to honor the memory of a former statistician of the U.S. Bureau of Labor Statistics. Mr. Jacobs was the chief statistician on a number of major, Federal economic statistics programs including the Consumer Price Index which measures the rate of inflation in the American economy. The innovations he introduced are good examples of the practical uses of statistics and mathematics in improving the collection of data needed to form public policy.

The purpose of the Jacobs Award program is to encourage students to gain an understanding and appreciation of surveys and their uses. To appreciate the strengths and weaknesses of statistics reported in the press and elsewhere, a basic understanding of how results are produced is important.

Students eligible to submit a project must attend one of the high schools or middle schools in the Washington area. In order to be eligible, a student must be taught by a mathematics teacher who will teach a module on statistics during the 1993-94 academic year.

The project may focus on the role of sample surveys as a way of gathering information for making decisions, as a way to make comparisons among groups, or as a way of collecting data for analyzing trends over time. Examples of data that might be collected by students are expenses associated with automobiles and money earned in part-time jobs held by classmates.

The winning team will receive a total prize of \$200 in U.S. savings bonds. The team members and mathematics teacher who supervised the project will be invited to the WSS Annual Dinner where the prize will be awarded. The deadline for entry is April 15, 1994. For detailed information about the project, contact Mary Batcher at (202) 874-0464 or Richard Valliant at (202) 606-7382.

WSS Seminars		
(All events are open to any interested persons)		
April		
5	Tues.	Problems in Measurement and Evaluation in the Environmental Justice Movement Modeling Categorical Error
6	Wed.	Reforming the Unemployment Insurance System: Summary of the Recommendations of the
7	Thurs.	Advisory Council on Unemployment Compensation
14	Thurs.	Monte Carlo on Parallel Computers
21	Thurs.	Design and Analysis of Vaccine Trails
21	Thurs.	Analyzing Imputed Data Sets With Model-Assisted Estimators
28	Thurs.	Small Area Estimation for Binary Variables in the National Health Interview Survey (Fourth Presentation in Methodology Seminar Series on Small Domains)
May		
26	Thurs. &	Short Course: "Multiple Imputation"
27	Fri.	

Announcements

Social Committee Volunteers Needed

The WSS Board of Directors needs interested people to work on the Social Arrangements Committee. This committee plans events such as the Annual Dinner and the Holiday Party. Please call Kim Long at (301) 299-5904 for more information.

Quality Management: Development of a Framework for a Statistical Agency

The Office of Statistical Standards of the Energy Information Administration is presenting a seminar entitled *Quality Management: Development of a Framework for a Statistical Agency* on Monday, April 25, 1994 in room 1E-245 of the U.S. Department of Energy, Forrestal Building, 1000 Independence Avenue SW, Washington, DC. The presenters will be Michael Colledge and Mary March of Statistics Canada. The seminar will begin at 9:00 a.m. and extend till lunchtime. At 1:00 p.m. the presenters will be available for informal discussion. A government identification will be required for entry into Forrestal which is nearby both the Smithsonian and the L'Enfant Plaza stations of the Metro. If you have any questions call Howard Magnas at 202-254-5371.

Data in the Department of Defense Seminar

On Wednesday, June 22, 1994 at 12:30 p.m. WSS and ASA's Committee on National and International Security will sponsor a WSS seminar on Data in the Department of Defense--Managing a Vast and Valuable Resource. Dr. David Signori, Associate Director of the Defense Information Systems Agency, will present an overview of the problems and issues involved in managing such a vast resource. Topics will include documenting data about data and about information assets and dealing with the hacker threat. More details to be found in the next newsletter.

The Art of Modeling Dynamic Systems

The Art of Modeling Dynamic Systems (EMATH 477), a new course taught by Foster Morrison, will be offered this spring at the USDA Graduate School/Evening Programs. The course will cover the various modeling tools available and what they can and cannot accomplish. The basis of the course is Mr. Morrison's book, *The Art of Modeling Dynamic Systems: Forecasting for Chaos, Randomness and Determinism*. This book has been described as "a unified and wise treatment of issues particularly applicable to statistical practice in forecasting and economic simulation, modeling, multiple regression and other advanced uses of computing". The class will be held on Mondays, April 11 to June 20 (10 weeks) 6-9 p.m. at the South Agriculture Building, 14th and Independence Avenue SW (at Smithsonian Metro, Independence Avenue exit). The tuition is \$179. Call (202) 720-5885 for further information. Registration continues until April 23.

BLS Research and Evaluation Series

On Friday, April 22, 1994 at 10:00 a.m., Kevin Lang from Boston University will speak about "Ability Bias, Discount Rate Bias, and the Returns to Education". The seminar will be held in the BLS Behavioral Science Lab, 2990 Postal Square Building, 2 Massachusetts Avenue NE (across from Union Station). Please direct any questions to Patricia O'Neal at (202) 606-7391.

The American University Summer Classes

The Department of Mathematics and Statistics of The American University announces its Summer 1994 Schedule of Graduate Classes: Statistical Methods, Regression, Generalized Linear Models. These courses will be held *MW 5:30-8:10 p.m. Registration begins in May. For additional information, please call (202) 885-3120.

Program Abstracts

- Topic:** Problems in Measurement and Evaluation in the Environmental Justice Movement
- Speaker:** Edwardo L. Rhodes, School of Public and Environmental Affairs, Indiana University
- Chair:** Michael A. Greene, American University
- Discussant:** Brand Niemann, Environmental Protection Agency
- Date/Time:** Tuesday, April 5, 1994, 12:30 - 2:00 PM
- 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. Federal government employees show ID; nongovernment employees call Ed Riddick at (202) 606-7376 to add name to visitors' list.
- Sponsor:** Social and Demographic Section
- Abstract:** Since the mid-1980's, there has been growing recognition that persons of color in both urban and rural areas may be exposed to potentially much higher levels of environmental health and safety risks than the American population as a whole. These potential risks take several forms, including the increased likelihood of minority communities or population groups living in closer proximity to hazardous material disposal/treatment facilities, and enduring higher levels or incidence of exposure to environmental hazards such as lead poisoning. Evaluating the extent of this problem is particularly complicated by an environmental information system which heretofore excluded demographic information on community characteristics and an inability to evaluate more than one risk factor at a time. The presentation will review some of the more typical problems encountered in equity assessment and one alternative evaluation methodology.

Program Abstracts (Cont'd)

Topic: Modeling Categorical Error

Speaker: Mark A. Espeland, Wake Forest University

Chair: Sally Hunsberger, National Cancer Institute

Date/Time: Wednesday, April 6, 1994 1:30 PM - 3:00 PM (Note special time)

Location: National Institute of Health (NIH), Building 31, Medical Board Room
(Red Line to Medical Center, take campus shuttle to building 31)

Sponsor: Public Health and Biostatistics

Abstract: Error among discrete variables, unless explicitly modelled, introduces bias in estimation. In some settings, the nature of categorical error, including its structure and correlates, is an important research question. Several approaches to constructing models for categorical error across a range of study designs will be described, including a class of joint models for prevalence and error that yields partitionable likelihoods. This class of models leads to separate sets of marginal sufficient statistics for the parameters defining study factors and the parameters governing error, which, in turn, lead naturally to iterative algorithms for likelihood maximization. The marginalization of the estimation problem also opens avenues for more general modes of estimation that can address both fixed and random effects parameterizations for categorical error, such as Gibbs sampling. Examples will be presented that include general latent class models for multi-rater agreement, estimation of the correlation structure for bivariate categorical error, and modelling the distribution of subject differences in "diagnosability." The implications of modelling errors for study design and power will be briefly discussed.

Program Abstracts (Cont'd)

- Topic:** Reforming the Unemployment Insurance System: Summary of the Recommendations of the Advisory Council on Unemployment Compensation
- Speaker:** Laurie Bassi, Executive Director of the Advisory Council
- Chair:** Michael Horrigan, Bureau of Labor Statistics
- Date/Time:** Thursday, April 7, 1994, 12:30 - 2:00 PM
- 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. Federal government employees show ID; nongovernment employees call Ed Riddick at (202) 606-7376 to add name to visitors' list.
- Sponsor:** Social and Demographics Section
- Abstract:** The February 1, 1994 release of the Interim Report and Recommendations of the Advisory Council on Unemployment Compensation lays the groundwork for a comprehensive review of the Unemployment Insurance (UI) System. The report advances the thesis that the "purpose of the Unemployment Insurance system, and in particular, the Extended Benefits program must be expanded if the system is to deal effectively with the changing nature of unemployment." In her talk, Laurie Bassi will describe the nature of these changes in unemployment and the ways in which the UI system could be expanded to accommodate them--in particular, how the system can more effectively deal with the issues of long-term unemployment and worker dislocation. The issue of how any recommended course of action must carefully consider the impact on the solvency of the UI system will also be addressed.

Program Abstracts (Cont'd)

- Topic:** Monte Carlo on Parallel Computers
- Speaker:** James E. Gentle, George Mason University
- Chair:** Daniel B. Carr, George Mason University
- Date/Time:** Thursday, April 14, 1994, 12:30 - 2:00 PM
- 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. Federal government employees show ID; nongovernment employees call Ed Riddick at (202) 606-7376 to add name to visitors' list.
- Sponsor:** Statistical Computing Section
- Abstract:** Monte Carlo is an "embarrassingly parallel" procedure. The main requirement is a random number generator that can be run in parallel and, because the size of the Monte Carlo sample may be quite large, that has a very long period. A generator that satisfies these requirements will be described. There are currently several parallel computers, including a "parallel virtual computer." The PVM software available free from Oak Ridge National Lab can tie together several computers, possibly of different types and at different sites, so that they act as a parallel computer. The use of PVM in statistical applications will be discussed.

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

Items for publication in the June 1994 WSS NEWS should be submitted no later than April 26, 1994. FAX items to:

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

Program Abstracts (Cont'd)

- Topic:** Design and Analysis of Vaccine Trails
- Speaker:** William Blackwelder, National Institute of Allergy and Infectious Diseases
- Chair:** Sally Hunsberger, National Cancer Institute
- Date/Time:** Thursday, April 21, 1994, 11:00 - 12:30 PM (Note special time)
- Location:** Conference Room H, Executive Plaza North, 6130 Executive Blvd., Rockville, MD
- Sponsor:** Public Health and Biostatistics
- Abstract:** In recent years there has been an increased emphasis on vaccine efficacy trials, due to such factors as the dissatisfaction with current pertussis vaccines, the Children's Vaccine Initiative, and the AIDS epidemic. Design, analysis, and conduct of such trails raise issues which may differ in some respects from those encountered in drug treatment trails. First, safety considerations may be relatively more important, since vaccines are in most cases administered to healthy individuals. Other issues include the basic comparison to be made (vaccine-vaccine or vaccine-placebo), the level of efficacy to be demonstrated, and which participants to include in the primary analysis. Various methods are available for estimating vaccine efficacy; for example, a Poisson approach, a logarithmic transformation of cumulative incidence, and proportional hazards regression; it is not known, however, the extent to which variability of disease risk with calendar time, time since vaccination, age, or geographic region affect the properties of these methods.

Program Abstracts (Cont'd)

- Topic:** Analyzing Imputed Data Sets With Model-Assisted Estimators
- Speaker:** Robert E. Fay, Bureau of the Census
- Discussant:** Fritz Scheuren, Internal Revenue Service
- Chair:** Phil Kott, National Agricultural Statistics Service
- Date/Time:** Thursday, April 21, 12:30 - 2:00 PM
- 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. Federal government employees show ID; nongovernment employees call Ed Riddick at (202) 606-7376 to add name to visitors' list.
- Sponsor:** Methodology Section
- Abstract:** Multiple imputation has been applied for mass imputation, that is, the imputation from a subsample with complete information to a larger sample. In such applications, the missing data rates are substantial -- as much as 80% or more -- but valid inference should, in principle, be within reach when probability sampling is used. On the other hand, previously identified limitations of multiple imputation can become severely amplified in this setting. This talk presents an attractive alternative strategy to multiple imputation, fractionally weighted imputation.

Fractionally weighted imputation has several desirable features: efficient model-dependent estimators can be constructed when the model is true; consistent estimates of the model variance of these estimators are available; and model-assisted estimators, which are more resistant to model failure, can also be constructed as can consistent estimates of their variances. Moreover, researchers will be able to test the impact of model failure through comparison of the model-dependent and model-assisted estimates.

Program Abstracts (Cont'd)

- Topic:** Small Area Estimation for Binary Variables in the National Health Interview Survey (Fourth Presentation in Methodology Seminar Series on Small Domains)
- Speaker:** Donald Malec, National Center for Health Statistics
- Chair:** Phil Kott, National Agricultural Statistics Service
- Date/Time:** Thursday, April 28, 12:30 - 2:00 PM
- 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. Federal government employees show ID; nongovernment employees call Ed Riddick at (202) 606-7376 to add name to visitors' list.
- Sponsor:** Methodology Section
- Abstract:** The National Health Interview Survey is designed to produce precise estimates for the entire United States, but not for individual states. In this talk, a Bayesian predictive inference method, used to provide point estimates and measures of variability for finite population quantities, is described. The finite population quantities of interest are based on binary random variables such as the occurrence of at least one visit to a doctor within the past twelve months.
- The model specification is hierarchical. First, for each cluster there is a separate logistic regression relating the individual's probability of a doctor visit to his/her characteristics. Second, there is a multivariate linear regression linking the cluster regression parameters to covariates measured at the cluster level.
- Numerical methods are needed to obtain the posterior moments corresponding to the small areas. Posterior means and variances are produced and compared using three different methods, two of which are approximations. In addition, the Bayes estimates are compared with empirical Bayes estimates, synthetic estimates and estimates obtained from a conventional randomization-based approach.

Announcements Cont'd

Seminar on New Directions in Statistical Methodology

On May 25-26, 1994, the Council of Professional Associations on Federal Statistics (COPAFS) will host a seminar on "New Directions in Statistical Methodology". The seminar will focus on a variety of topics that have been explored in the Statistical Policy Working Paper series developed under the auspices of the Federal Committee on Statistical Methodology. The subjects to be covered will include:

- Economic Classification Revisions
- Disclosure Limitation Methodology
- Customer Surveys
- Incentives in Surveys
- Statistical Uses of Administrative Records
- Computer Assisted Survey Information Collection (CASIC)
- Cognitive Testing and Self-Administered Questionnaires
- Longitudinal Surveys
- Small Area Estimation
- Time Series Revision Policies
- Data Editing
- Nonresponse in Surveys

Seminar participants will include federal statisticians, economists, and managers, as well as others in the broader statistical community who share an interest in the quality of federal data.

The keynote speaker will be Graham Kalton of Westat, Inc. The seminar will close with a wrap-up session: Towards an Agenda for the Future, with papers given by Norman Bradburn of the National Opinion Research Center, Robert Groves of the Joint Program in Survey Methodology, and Katherine Wallman, of the Office of Management and Budget.

The cost for the two-day seminar will be \$125.00 per person, and will be held at the Holiday Inn

Bethesda, 8120 Wisconsin Avenue, Bethesda, Maryland. Registration will be limited to 250 participants. For further information, contact Edward Spar in the COPAFS office (703) 836-0404.

SIGSTAT Meeting

SIGSTAT is the Joint Special Interest Group in Statistics for the Capital PC User Group and WORMSC (Washington Operations Research/Management Science Council). SIGSTAT is sponsoring the following meeting: on April 6, 1994, "SAS/Insight", graphical data analysis, EDA and Generalized Linear Models with a point-and-click interface. The meeting is scheduled from 12:30-1:30 p.m. in Room B-14, 1301 New York Avenue NW, Washington, DC. The building is located midway between Metro Center and McPherson Square Metro stops. If this is your first SIGSTAT meeting, call Charlie Hallahan, (202) 219-0507, and leave your name in order to gain entry into the building.

Confidentiality and Data Access

The Journal of Official Statistics has produced a special issue on Confidentiality and Data Access (JOS 1993:2). Among the articles are: Report of the Panel on Confidentiality and Data Access, Measures of Disclosure Risk and Harm, Informed Consent in U.S. Government Surveys, Statistical Analysis of Masked Data, Statistical Disclosure Limitation Practices of United States Statistical Agencies, Confidentiality Legislation and the United States Federal Statistical System, Procedures for Restricted Data Access. Order by mail: Statistics Sweden, JOS Office, Gunilla Dahlen, S-701 89 OREBRO, Sweden; by fax 46 19 17 70 82; by phone 46 19 17 65 81. Cost is \$25 per copy. Please include number of copies, name, and address.

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

Statisticians

Westat is an employee-owned corporation headquartered in the suburbs of Washington DC (Rockville, MD). We provide statistical consulting and survey research to the agencies of the U.S. Government and to a broad range of business and institutional clients. With a strong technical and managerial staff and a long record of quality research, our company has become one of the leading survey research and statistical consulting organizations in the United States.

Our company was founded nearly 32 years ago by three statisticians. The current staff of more than 700 include statisticians, survey researchers, psychologists, medical researchers, sociologists, economists, market research and behavior analysts, computer systems analysts, programmers and support staff. The professional staff is supported by survey field supervisors, coders and interviewers. The atmosphere is open, progressive, and highly conducive to professional growth.

Our statistical efforts continue to expand in areas such as the environment, energy, health, education, human resources, and teaching courses in statistical methods. Several positions are currently available which require a graduate degree in statistics:

Survey Sampling, minimum two years relevant

experience required in sample design and selection, frames development, weighting, and variance estimation. Must have Masters Degree or PhD in Statistics Program.

Biostatistician, work in Clinical Trials, their design, analysis and management. Also work in Survival Analysis Models and Longitudinal Studies. Substantial (but not exclusive) focus on HIV related issues. Ph.D. in Biostatistics and at least five years experience required.

To insure proper consideration, interested applicants should indicate one of the above areas and send resume with current salary to: Westat, Inc., Dept DRM-1, 1650 Research Blvd., Rockville, MD 20850.

Job Applicant

Listed below is a brief description of the qualifications of an applicant seeking employment. Employers interested in interviewing an applicant should write or call: Bill Arends, USDA-NASS, Room 4133 South Building, Washington, DC 20250-2000; (202) 720-6812. All requests should include the code number from the applicant's ad and employer's name, organization, and telephone number. The applicant will be notified of the employer's interest and initiation of any further contact will be left to the applicant. All contacts will be kept confidential.

Applicant #94-07

Education: B.S. in Applied Statistics and Economics. Pursuing M.S. in Statistics with emphasis on Quality Control.

Experience: Consultant with 12 months in environmental data collection. Supervision and training of data collectors. Continuous monitoring of quality of the data collected. Exposure to SAS using TSO, JCL, and SPF; SPSSX, and MINITAB.

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Michael Greene (202) 885-3123

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Franklin Winters (301) 763-8571

Short Courses

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Jeri Mulrow (202) 874-0434

**Public Health and
Biostatistics**

Barry Graubard (301) 496-8547
Sally Hunsberger (301) 496-5905

Data Collection Methods

Jared Jobe (301) 436-7111
Theresa DeMaio (301) 763-7331

Employment

Bill Arends (202) 720-6812

WSS NEWS Editors

Theresa Hallquist (202) 586-2051
Hattie Ramseur (202) 586-1124

Membership

Antoinette Martin (202) 254-5409
Renee Miller (202) 254-5507
Fritz Scheuren (202) 874-0700

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Ed Milton (202) 366-2751

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