



January 1987

WASHINGTON
STATISTICAL
SOCIETY

NEWSLETTER

January 8	Thursday	On Randomness, Determinism, and Computability
January 13	Tuesday	Hypothesis Tests on Relative Risks for Null Values Other Than One
January 14	Wednesday	After-Tax Income Distributions
January 20&21	Tues./Wed.	SHORT COURSE: Analysis of Categorical Data From Complex Samples
February 4	Wednesday	Dorfman-Type Hierarchical Group Screening Procedures in Faulty Inspection Models

WSS: By the People, For the People

The strength of the Washington Statistical Society has always been the willingness of its members to devote their efforts in serving on the Board of Directors and in other necessary activities of the Society. One measure of this involvement was obtained recently when a summary of WSS Board and Committee members for the last 5 years was prepared. A total of 81 individuals have held one or more positions on the Board of Directors or a Committee of the Board during that time, an amazing percentage of the 1390 members on a recent membership printout. This total does not include individuals who volunteered their time to judge school science fairs last year and does not include WSS members who serve on the Shiskin Award Committee as representatives of their organizations.

Many individuals make a contribution for only one or two years but some devote several years to the Society. Lynn Kay is currently in her 11th year as Employment Committee Chair and Seymour Selig "retired" this year after heading up the Physical Sciences and Engineering Committee for 11 years. Rich Allen and Bennie Clemmer have been the Society's Secretary and Treasurer for 7 and 6 years, respectively. Lillian Madow should also be given special recognition. She has served on the Board for 7 consecutive years, the last 6 as the WSS Representative to the Shiskin Award Committee. Lillian has remained active in that role even though she moved to California 4 years ago.

While the record of member involvement is commendable, more help and new ideas are always needed. If you want to serve the Society in some fashion, let Dan Kasprzyk, this year's Board President, or Nancy Kirkendall, President-Elect, know.

WASHINGTON STATISTICAL SOCIETY PROGRAM CHAIRS

Agriculture & Natural Resources Ron Bosecker 447-3895 Maurice Owens 734-4379	Public Health & Biostatistics Jai Choi 436-7047 Mary Foulkes 496-6818	Short Courses Virginia deWolf 366-5361 Terry Ireland 301-859-6104 Andrew A. White 436-7022 Glenn White 763-5248
Economics Lynda Carlson 252-1112	Social & Demographic Statistics Lee-Ann C. Hayek 357-1587 John Czajka 484-9220	Methodology Mary Mulry 763-7140 Bill Winkler 252-2140
Physical Sciences & Engineering Donald Gantz 425-3931	Statistical Computing Harry Foxwell 872-8058 Sally Howe 921-3395	Newsletter Editor David Judkins 251-1500
Employment Evelyn Kay 331-1153		

Program Abstracts

TOPIC: On Randomness, Determinism, and Computability
SPEAKER: Edward Wegman, George Mason University
DISCUSSANT: Nozer Singpurwalla, George Washington University
CHAIR: Lyle Broemeling, Office of Naval Research
DATE AND TIME: Thursday, January 8, 1987; 12:30 to 2:00 p.m.
LOCATION: Room 2736, GAO Building, 441 G Street, N.W. Call 523-1760 if you plan to attend in order to assure building entrance.
ABSTRACT: This talk will discuss the meaning and relationship of randomness and determinism. Randomness is discussed in its intuitive understanding as lack of repeatability, lack of predictability, and lack of pattern. Related to this, a fundamental exposition of chaotic dynamical systems is given with some examples. These can be used to generate time series which are both deterministic and still exhibit all the above-mentioned characteristics of randomness. The formal definition of randomness in terms of algorithmic incompressibility and the role of recursion in computability and randomness are also discussed.

TOPIC: Hypothesis Tests on Relative Risks for Null Values Other Than One
SPEAKER: William Blackwelder, National Institute for Allergies and Infectious Diseases (NIAID)
CHAIR: Ray Bain, George Washington University
DATE AND TIME: Tuesday, January 13, 1987; 1:30 to 3:30 p.m.
LOCATION: Landow Building, Conference Room E, 7910 Woodmont Ave., Bethesda, Maryland
ABSTRACT: We may wish to test a null hypothesis of the form $R \geq R_0$, where R is relative risk and $R_0 \neq 1$, for data from two binomial populations. Two methods for constructing such a test are discussed: one is based on the normal approximation to the logarithm of a binomial proportion; the other is based on likelihood scores. The methods are applied to the design of a clinical trial of pertussis vaccines. For each method we compare optimal allocation to treatment group and sample size as determined by asymptotic formula and direct computation.

TOPIC: Short Course: Analysis of Categorical Data From Complex Samples
INSTRUCTOR: Robert Fay, Bureau of the Census
DATE AND TIME: Tuesday/Wednesday, January 20 & 21, 1987; 9:00 to 5:00 p.m.
FEES: WSS & ASA Members \$90; Nonmembers \$110.
INFORMATION: See announcement enclosed in this Newsletter.

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Program Abstracts (continued)

TOPIC: After-Tax Income Distributions
SPEAKERS: Charles Nelson, Bureau of the Census, and
Phil Clark, Internal Revenue Service
DISCUSSANT: Benjamin Bridges, Social Security Administration
CHAIR: Bernard Schmitt, Joint Committee on Taxation
DATE AND TIME: Wednesday, January 14, 1987; 12:30 to 2:00 p.m.
LOCATION: IRS Auditorium (7th Floor) 1111 Constitution Avenue, N.W.
(Across from Federal Triangle Metro Station)
ABSTRACT: Historically, two of the principal sources of income data for the U.S. have been the Internal Revenue Service's Statistics of Income program, which has assembled income and tax information from individual income tax returns for the past 70 years, and the Bureau of the Census, which has produced before-tax income estimates from the March Current Population Survey (CPS) since 1947. Recently, both agencies have undertaken efforts to develop estimates of after-tax income which contain the demographic information and nonfiler data found in the CPS and adjustments for taxes, previously only available from IRS. Chuck Nelson will discuss the Census study to simulate after-tax income for CPS households. Phil Clark will describe IRS efforts to synthetically match tax data to uncovered income and data for nonfilers, to yield after-tax income for family units. The emphasis of both talks will be methodological in nature.

TOPIC: Dorfman-Type Hierarchal Group Screening Procedures
in Faulty Inspection Models
SPEAKER: Samuel Kotz, University of Maryland
DISCUSSANT: Nancy Flournoy, National Science Foundation
CHAIR: Arnold Greenland, Washington Consulting Group
DATE AND TIME: Wednesday, February 4, 1987; 12:30 to 2:00 p.m.
LOCATION: Room A-5, Martin Luther King Library, 901 G Street, N.W., Washington, D.C.
ABSTRACT: In view of the current drug-testing euphoria, the so-called "group testing acceptance procedures" introduced by R. Dorfman over 40 years ago may again become of some practical relevance. The main purpose of these procedures is to reduce the expected amount of testing. In this talk results of recent investigations of various hierarchal (multi-stage) group testing procedures in the case of imperfect inspection (with the two possible "types" of errors) will be discussed. Methods for reduction of probabilities of "false positives" are emphasized and some tentative recommendations as to adequacy of various modifications are presented.

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Other Announcements

Bureau of Labor Statistics Statistical Seminar

On Friday, January 9, S. James Press from the University of California, Riverside, will speak on "Bayesian Inference for Pareto Populations, Including Censored or Grouped Data," as part of the BLS statistical seminar series. The seminar will be held in Room 2736 in the GAO Building, 441 G Street, N.W., from 10:00 to 11:00 a.m. If you plan to attend, you must call 523-1760 in advance to arrange building entry. For additional information about this presentation, contact Sandra West at 523-1874.

Census Bureau's Third Annual Research Conference (ARC III)

The program for the Census Bureau's Third Annual Research Conference has been set. Response to the Bureau's first "Call for Papers" was overwhelming. More than 115 abstracts were received from which only 30 could be selected. The choices were very difficult; many fine papers and ideas had to be turned away.

ARC III is scheduled to begin Sunday evening, March 29, 1987, and run through 2 p.m. on Wednesday, April 1, 1987, at the Omni International Hotel in Baltimore, Maryland.

The overall theme is "Improving the Quality of Survey Results." The program will devote one session to each of 14 topics within the overall theme, and also include the Shirley Kallek Memorial Lecture. Session topics include historical perspectives on quality, quality issues in economic data, questionnaire design for automated interviewing, automating the survey process, designing automated data editing systems, effects of confidentiality protection methods on data use, issues in response error, quality improvements in statistical programs in Mexico, modeling survey estimates, quality of housing statistics, evaluation of imputation procedures, designing quality into censuses and surveys, management issues in surveys and censuses, and quality issues in income statistics.

For additional information contact Carolee Bush, Office of the Director, Bureau of the Census, Washington, D.C. 20233; (301) 763-4900.

1987 ASA Winter Conference

Don't forget the first annual Winter Conference to be held January 7 through 9, in Orlando, Florida.

Registration, housing and employment forms appear in the September-October issue of Amstat News. Nonmembers may request this material by contacting the American Statistical Association, 806 15th Street, N.W., Suite 640, Washington, D.C. 20005; (202) 393-3253.

Science Fair Reminder

Volunteers are still needed to judge science fairs in Northern Virginia, D.C., and Maryland on behalf of the WSS. The WSS provides special awards for students whose projects show excellence in investigation of statistical theory or in application of statistical methodology. Please call Susan Ellenberg at 496-4836 to volunteer or to obtain more information.

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Other Announcements (continued)

Workshop on the Design and Use of the National Crime Survey

The Bureau of Justice Statistics and the Committee on Law and Justice Statistics of the American Statistical Association announce a 1987 summer workshop on the Design and Use of the National Crime Survey (NCS).

To be held July 6-17, 1987, at the University of Maryland in College Park, the workshop will feature:

- Lectures by a distinguished faculty of fourteen statisticians and social scientists;
- The latest technical information on the design, collection and analysis of the NCS;
- Hands-on instruction in the analysis of NCS data; and
- A stipend of \$1,000 plus travel and subsistence expenses.

The program for the workshop will introduce participants to both the methodology of the NCS and its substantive use. Topics to be covered include conceptual issues in measuring victimization, the design of the NCS (past, present and future), data collection procedures, file structure and software, estimation procedures, error properties, risk-assessment, longitudinal analysis, multi-level analysis and typology construction.

The workshop is designed to stimulate the use of the NCS by providing the necessary technical information and an opportunity for the exchange of ideas among users of the survey. Computing facilities and instruction will be available so that participants can use the data during the workshop.

Applicants should have a Ph.D. or comparable degree in statistics or one of the social sciences, and offer a professional commitment to examine the NCS data in future research. An intensive small group environment is planned so that the number of openings is limited. To insure consideration, resumes and a letter describing interest in the survey should be sent as soon as possible to Colin Loftin, Institute of Criminal Justice and Criminology, University of Maryland, College Park, Maryland 20742; (301) 454-5129. Deadline for applications is March 1, 1987.

Summary of October and November WSS Board Meetings

The WSS Board held its regular monthly meetings in October and November. Upcoming programs were announced. A new project the Board is undertaking is that of providing additional benefits to WSS members. Two options currently being pursued are publishing a directory of WSS members and obtaining discounts for members at local bookstores. The Board also discussed the possibility of organizing contributed paper sessions for WSS meetings. More information about this is included in this Newsletter.

President Dan Kasprzyk shared a letter he received from Barbara Bailar. She had received a letter from Yan Delun, Vice President of the Shanghai Municipal Statistical Society. Mr. Yan is interested in developing joint statistical activities with a local ASA chapter. The Board agreed that since San Francisco is the sister city of Shanghai, it would be appropriate for the San Francisco chapter to pursue this project.

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Other Announcements (continued)

New Lecture Format

The Washington Statistical Society is considering initiating a topic-contributed paper seminar series. The format would be similar to the contributed paper sessions at the annual meeting of the American Statistical Association. Each seminar would include 3 to 4 speakers with a discussant, each speaking for 15 minutes about some aspect of a single topic.

Anyone interested in presenting a contributed paper in such a series should contact the appropriate program chair in writing, with a title and brief abstract. Please keep in mind that sessions will be organized only when there is a sufficient number of papers concerning a single topic. Anyone interested in organizing a contributed paper seminar should contact the appropriate program chair by telephone.

Washington Academy of Sciences Seminar

On Thursday, January 15, David Kranz from the Uniformed Services University of the Health Services will speak on "Mind-Body Interaction: Stress Behavior and Cardiovascular Disease." The talk will be held at the Mary Grayden Center, American University, at 8:30 p.m. Preceding Dr. Colwell's presentation, there is a social hour at 6:45 and a dinner at 7:30. There is a charge for the social hour and dinner. Reservations must be made one week in advance by calling 320-3621. There is no fee for attendance of only the lecture.

Employment Column

Deadline for inserting notices is 5 weeks before the publication date. Send notices and requests to:

Evelyn R. Kay
520 - 22nd Street, N.W.
Washington, D.C. 20037
(202) 331-1156

Job Opening

FACULTY POSITION: The Department of Statistics/Computer & Information Systems at The George Washington University invites applications for a tenure-track position in Statistics beginning September 1987. Rank open, with Assistant or Associate level preferred. Candidates should have a Ph.D. in statistics with a strong potential for research at the Assistant level or an excellent research record at the senior levels and should have an interest in both theoretical and applied statistics. Applicants in all specialties are invited, especially those with an interest in biostatistical theory and methods.

The Department offers masters and doctoral degrees in statistics and a broad undergraduate program in statistics and computer science. Duties of the position include teaching at undergraduate and graduate levels. The Department also operates the Biostatistics Center, a major research facility for clinical trials and other medical investigations.

Candidates should send applications including curriculum vitae, relevant reprints, and three letters of reference to Professor Robert Smythe, Chairman, Department of Statistics/Computer & Information Systems, The George Washington University, Washington, D.C. 20052. Applications must be received by February 15, 1987.

ANALYSIS OF CATEGORICAL DATA FROM COMPLEX SAMPLES

Robert E. Fay, U.S. Bureau of the Census
Tuesday and Wednesday, January 20-21, 1987

Analytic methods for cross-classified data originally were developed under simple random sampling assumptions. It is also possible to apply these techniques in a formal manner to estimates derived from complex samples. It has long been recognized, however, that the assumption of simple random sampling may yield estimated standard errors and tests of significance that are seriously inappropriate for complex samples. This course describes several methods that have been proposed to address these issues and pays particular attention to techniques based upon replication methods. The emphasis will be on practical application. A more detailed course description is contained on the second page of this announcement.

DATES: Tuesday and Wednesday, January 20-21, 1987

TIME: 9:00 a.m. to 5:00 p.m. Each day there will be a 1-1/2 hour break for lunch (on your own) and several short breaks for refreshments. A cafeteria is available. Allow time for vehicle registration.

LOCATION: U.S. Bureau of the Census
Room 2412, Building 3
Suitland Federal Center
Suitland, Maryland 20233
(Intersection of Silver Hill Rd. and Suitland Rd., about 25 minutes from downtown.)

FEES: Fees include handouts and coffee breaks.

* WSS and ASA members.....\$ 90

* Nonmembers.....\$110

REGISTRATION: Please make check or purchase order payable to the WASHINGTON STATISTICAL SOCIETY and mail with the attached registration form to:

WSS Short Course Committee
c/o Virginia de Wolf
1229 Noyes Drive
Silver Spring, MD 20910

Registration is limited to 80 people. All registration materials, including purchase order, must be received by January 13, 1987.

To receive confirmation of your registration, please enclose a self-addressed, stamped envelope with your registration material. For further information about the course content call Glenn White at (W) 763-5248. For questions about registration or billing call Virginia de Wolf at (W) 366-5361 or (H) 588-8812.

ANALYSIS OF CATEGORICAL DATA FROM COMPLEX SAMPLES

TOPIC:

It is clearly possible to take an estimated cross-classification from a complex sample and to treat these estimates as counts from a multinomial distribution for purposes of log-linear or similar analysis. The correctness of this approach is another matter. Quite frequently, the usual chi-square tests will be inflated by the complex design, so that these tests reject unacceptably often under the null hypothesis. Similarly, the standard errors of the parameter estimates may be seriously underestimated, so that the resulting confidence intervals are too short. This course reviews appropriate methods and presents three in detail: weighted least squares, methods proposed by Rao and Scott, and replication. Practical aspects of applying each method will be described.

The course is designed primarily with the practitioner in mind. Detailed background in survey sampling will not be required, but it will be helpful to have some familiarity with basic sample survey notions. Similarly, previous experience with log-linear models or logistic regression is desirable but not essential. Attendees should have basic knowledge of statistical testing, independence, estimation, and the multinomial distribution. Experience with notions of fitting models to data, such as acquired from use of linear regression, is also important.

Part of the course focuses on useful techniques to choose a suitable replication method for a given sample design. Persons registering for the course may write to the instructor at Statistical Methods Division, U.S. Bureau of the Census, Washington, DC 20233, to suggest specific sample surveys to be used as possible examples for the course, by December 15, 1986.

COURSE OUTLINE:

1. Introduction
2. Log-Linear and Logistic Models
3. Inference for Simple Random Samples
4. Typical Features of Complex Samples
5. Model-Based vs. Design-Based Inference for Complex Samples
6. Effects of the Design on Inference Based on Simple Random Sampling
7. Weighted Least Squares and Wald Tests
8. Methods Developed by Rao and Scott
9. Replication Methods
10. Introduction to the CPLX software
11. General Strategies in Choosing a Replication Method
12. Practical Computing Aspects with CPLX
13. Other Approaches
14. Discussion and Questions



P.O. Box 23502
Washington, D.C. 20026

