



March 1988

WASHINGTON
STATISTICAL
SOCIETY

NEWSLETTER

March 3	Thursday	A Financial Risk Rating Model
March 7	Monday	Application of the Rai and Van Ryzin Dose-Response Model to Data from Developmental Toxicity Studies
March 14	Monday	Optimal Two Stage Designs for Clinical Trials with Binary Response
March 17	Thursday	Statistical Designs for Controlled Investigations
March 18	Friday	A Two-State Age-Structured Model for the Spread of AIDS
April 13	Wednesday	Near With Replacement Sampling Without Replacement Using Ranks

ANNOUNCEMENTS

Shiskin Award for Economic Statistics

Nominations are invited for the ninth annual Julius Shiskin Award in recognition of outstanding achievement in the field of economic statistics.

The Award is designed to honor an unusually original and important contribution in the development of economic statistics or in the use of economic statistics in interpreting the economy. The contribution could be in statistical research, in the development of statistical tools, in the application of computer techniques, in the use of economic statistics to analyze and interpret the economy, 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 can be nominated.

The Award will be presented with an honorarium of \$250 at the Washington Statistical Society Annual Dinner in June 1988. A nomination form may be obtained by writing to the Julius Shiskin Award Committee, c/o American Statistical Association, 1429 Duke Street, Alexandria, Virginia 22314-3402. Completed nomination forms must be received by April 1, 1988.

Previous winners of the Award have been Estella Dagum of Statistics Canada for her work in seasonal

adjustment, James Bonnen for his performance chairing the President's Reorganization Project for the Federal Statistical System, Edward Denison for his work at the Bureau of Economic Analysis and the Brookings Institution, Beatrice Vaccara for her contributions at the Bureau of Industrial Economics, Geoffrey Moore for his research in measurement and analysis of business cycles, David A. Pierce for his use of modern statistical techniques at the Federal Reserve Board, Janet Norwood for her direction of the statistical program of the Bureau of Labor Statistics, and Irving Kravis for his work in comparative studies of national income and prices.

ASA Open House

Come celebrate ASA's new building! ASA is having an Open House from 3:00 to 5:00 p.m. on Friday, March 25, 1988, complete with ribbon-cutting ceremony and distinguished guests. Call 703/684-1221 by March 22 so we may reserve your glass of champagne! The new building -- located at 1429 Duke Street, Alexandria, Virginia -- is easily accessible by car (parking available next door) and by Metro (just four blocks away).

WASHINGTON STATISTICAL SOCIETY PROGRAM CHAIRS

Agriculture & Natural Resources
Ron Bosecker 447-3895
W. Barnes Johnson 249-7388

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Robert Yuskavage 523-0876

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Brad Pafford 447-2129
Glenn White 763-5248

Methodology
Bill Winkler 763-3905
David Marker 251-4398

Newsletter Editor
Michael Cohen 454-6193

PROGRAM ABSTRACTS

TOPIC: A FINANCIAL RISK RATING MODEL
SPEAKERS: Kevin Kesecker, Economist; Jeremy Wu, Chief, Stat. Br., Agricultural Marketing Service
CHAIR: Raymond Bosecker, Chief, Survey Sampling Branch, National Agricultural Statistics Service
DISCUSSANT: Peter Basiotis, Human Nutrition Information Service
DATE & TIME: Thursday, March 3, 1988; 12:30 to 2:00 p.m.
LOCATION: Room 4302-S, South Agriculture Building, 12th and Independence Avenues, S.W., Washington, D.C. 20250
SPONSOR: Agricultural and Natural Resources
ABSTRACT: Meat packing firms whose annual sales are in excess of \$500,000 are required by law to file an annual report to the Packers and Stockyards Administration which regulates the industry. The financial information is reviewed to assure that meat packers are complying with the Packers and Stockyards Act. A statistical model has been constructed to classify meat packing firms as financially sound or suspect. The model is based on the logistic distribution function, and the parameters are estimated by the maximum likelihood method. Development of the current model and an evaluation of its performance will be presented.

TOPIC: APPLICATION OF THE RAI AND VAN RYZIN DOSE-RESPONSE MODEL TO DATA FROM DEVELOPMENTAL TOXICITY STUDIES
SPEAKER: Dorothy Wellington, Environmental Protection Agency
CHAIR: Barnes Johnson, Environmental Protection Agency
DISCUSSANT: Janet Springer, Food and Drug Administration
DATE & TIME: Monday, March 7, 1988; 12:30 to 2:00 p.m.
LOCATION: Room 1409, Food and Drug Administration, 200 C Street, S.W., Washington, D.C. 20204
SPONSOR: Natural Resources and Agriculture, and Public Health and Biostatistics Sections
ABSTRACT: Rai and Van Ryzin have proposed the only mechanistic model for determining the dose-response relationship in developmental toxicity. The results of applying the Rai and Van Ryzin model to the data from several teratology studies involving different toxicants and different species will be presented. The model's underlying assumptions will be discussed in terms of these data sets.

TOPIC: OPTIMAL TWO STAGE DESIGNS FOR CLINICAL TRIALS WITH BINARY RESPONSE
SPEAKER: Peter Thall, George Washington University
CHAIR: Dennis Dixon, NCI
DISCUSSANT: Y. Jack Lee, NINCDS
DATE & TIME: Monday, March 14, 1988; 10:00 a.m. to 12:00 noon (Note special time.)
LOCATION: Federal Building, Room B1-19, 7550 Wisconsin Avenue, Bethesda, Maryland (One block north of Bethesda Metro)
SPONSOR: Public Health and Biostatistics Program
ABSTRACT: We present a simple two stage design for a randomized clinical trial with dichotomous outcomes. It is based on a design of Ellenberg and Eisenberger which permits early acceptance of the null hypothesis after the first stage. We have optimized the design by minimizing the average expected sample size subject to constraints on the type 1 and type 2 errors. The resulting designs have maximum sample size only slightly larger than that of a single stage trial, with 40-45% of this maximum allocated to the first stage, and null hypothesis probability of early acceptance in excess of .60.

PROGRAM ABSTRACTS (continued)

TOPIC: STATISTICAL DESIGNS FOR CONTROLLED INVESTIGATIONS
SPEAKER: Leslie Kish, Institute for Social Research, The University of Michigan
CHAIR: Dallas Anderson, NINCDS
DATE & TIME: Thursday, March 17, 1988; 2:00 to 4:00 p.m. (Note special time.)
LOCATION: Federal Building, Room B1-19, 7550 Wisconsin Avenue, Bethesda, Maryland
 (One block north of Bethesda Metro)
SPONSOR: WSS Public Health and Biostatistics Program, Washington Academy of Sciences, and
 NINCDS Biometry and Field Studies Branch
ABSTRACT: Four basic MODULES are constructed to compare relative costs and variances (for any n) and major types of bias. Those modules are used to construct and compare five basic designs: one-shot case study, one group pre/post, control group comparisons, pre/post control groups, and four-group designs. Then 22 sources of bias are distinguished in six major types. Selection of restricted sites is discussed briefly; also delayed responses.

TOPIC: A TWO-STATE AGE-STRUCTURED MODEL FOR THE SPREAD OF AIDS
SPEAKER: Marc Artzrouni, Department of Mathematical Sciences, Clemson University
CHAIR: Joe Fred Gonzalez, Jr., Office of Research and Methodology, NCHS
DISCUSSANT: Michael Stoto, Institute of Medicine, National Academy of Sciences
DATE & TIME: Friday, March 18, 1988; 10:30 a.m. to 12:00 noon (Note special time.)
LOCATION: National Center for Health Statistics, 3700 East-West Highway, Hyattsville, MD, Rm. 1-39
SPONSOR: Office of Research and Methodology, NCHS and WSS
ABSTRACT: A two-state infective-age-structured model of the spread of AIDS captures all the essential features underlying the transmission dynamics of HIV and AIDS. For suitably chosen values of the parameters the model accurately replicates the history of AIDS to date and sheds light on the future course of the epidemic. The model suggests that given the decline in the growth rate of the cumulative incidence of AIDS the HIV epidemic may stop spreading by the late 1980's which would result in a leveling off of the AIDS epidemic in the early 1990's. Even though the yearly incidence will then decline, the large reservoir of HIV infectives accumulated during the 1980's will result in a continuing growth of the AIDS epidemic well into the beginning of the next century.

TOPIC: NEAR WITH REPLACEMENT SAMPLING WITHOUT REPLACEMENT USING RANKS
SPEAKER: Tommy Wright, Oak Ridge National Laboratory
CHAIR: William Winkler, Bureau of the Census
DISCUSSANT: Keith Rust, Westat
DATE & TIME: Wednesday, April 13, 1988; 12:30 to 2:00 p.m.
LOCATION: Room 2736, GAO Building, 441 G Street, N.W., Washington, D.C.
 (Please call 523-1760 if you plan to attend in order to assure building entrance.)
SPONSOR: Methodology Section
ABSTRACT: Let U_1, U_2, \dots, U_N be the N units of a finite population and let (y_i, x_i) be a vector of nonnegative components associated with the i^{th} unit, where the x 's are known and the y 's are unknown. A sample of fixed size n ($< N$) is to be selected to estimate the unknown population total $Y = \sum_{i=1}^N y_i$. Let π_i be the probability of sample inclusion for the i^{th} unit. Many (e.g., Hansen and Hurwitz, 1943, and Brewer and Hanif, 1983) have realized improvements in efficiency by taking $\pi_i = np_i$ where $p_i = x_i / \sum_{j=1}^N x_j$ is a normed measure of size for the i^{th} unit. Such plans, called probability proportional to size (πps) sampling plans, can be difficult to execute when sampling is without replacement (*wor*), particularly when $n > 2$.

PROGRAM ABSTRACTS (continued)

When a suitable variable x , which is directly proportional to the variable of interest y , is not available, one may know how to rank units reasonably well relative to the unknown y values before sample selection. When such ranking is possible, we introduce a simple and efficient *npstwor* sampling plan for general n using the ranks as the known x measures of size. The proposed sampling plan is similar to, has the simplicity of, and has no greater sampling variance than with replacement sampling, but is without replacement.

The method is compared numerically with several other methods for various populations.

OTHER ANNOUNCEMENTS

Nominations for WSS Elections

The nominees for next year's Board of Directors are:

President Elect

To be announced

Representative-at-Large (two-year term)

Stephanie Shipp (Bureau of Labor Statistics)
Virginia deWolf (National Highway Traffic Safety Administration)
David Cantor (Westat)
Mary Foulkes (National Institutes of Health)

Treasurer (two-year term)

Bennie Clemmer (Social Security Administration)

Methodology Program Chair-Elect

Myron Katzoff (National Center for Health Statistics)
Phillip Kott (U.S. Department of Agriculture)

The ballots for the election will be included in the April Newsletter.

Washington Academy of Sciences Meeting

The Washington Academy of Sciences will hold its March meeting in the Mary Graydon Center of American University at Massachusetts and Nebraska Avenues, N.W., on Thursday, March 17. Ursula Meese, Chairperson, Board of Directors, and Charlotte Ross, Executive Director, Youth Suicide National Center, will be speaking on *Youth Suicide: An Approach to the Problem*. The talk will be cosponsored by the Human Factors Society, the Eastern Sociological Society, and the District of Columbia Psychological Association.

There will be a wine and cheese reception at 6:45 p.m. followed by dinner at 7:30. The lecture will begin at 8:30 p.m. It is not necessary to attend the dinner to hear the lecture, and there is no charge for the lecture only. Call (301) 320-3621 for information and make dinner reservations at least three days in advance.

ASA Board of Directors Approves Creation of Section on Government Statistics

The Board of Directors of the American Statistical Association, at their December 1987 meeting, approved the establishment of a new section within the ASA structure to be known as the ASA Section on Government Statistics. The new section will become operational in January 1989 if at least five percent of the ASA membership (or about 750 members) indicate a desire to join the new section on a form to be included with the annual ballots that will be sent out in late Spring of 1988.

The new Section on Government Statistics will replace the existing ASA Committee on Government Statistics (chaired by Ed Spar) and ASA Committee on Subnational Statistics (chaired by Wray Smith). Special interests of the new section will be in the production and use of statistics by governmental bodies at all levels of government -- federal, state, and local -- and in the practice of statistics in the public sector. The interest areas include concern with statistical policy issues, quality and usefulness of government data products, special problems relating to state and local data, and the professional needs of statisticians in the public sector.

Some 130 ASA members joined Ed and Wray in submitting a formal proposal to ASA for the new section. The proposers noted that the section can provide a focus for current and future ASA members who work in government statistics (whether based on census and survey data or on administrative records), and for improving ASA outreach and services to government statisticians at all levels of government.

For additional information contact Wray Smith, Harris-Smith Research, Inc., 3030 Clarendon Boulevard, Suite 305, Arlington, VA 22201 (Telephone: 703/528-2772).

OTHER ANNOUNCEMENTS (continued)

Statistical Uses of Administrative Records

The Internal Revenue Service announces the release of Statistics of Income and Related Administrative Record Research: 1986-1987. This volume is the latest in the IRS Methodology Reports series, which draws together selected papers from annual ASA meetings and other related conferences to provide a look at current methodological improvements and applications in administrative record research in the Federal statistical community, both in the U.S. and Canada.

The present volume contains 40 selected papers, most of which were delivered at Survey Research Methods sessions in Chicago and San Francisco. The focus of the collection is three-fold -- it looks at:

- Current improvements in wealth estimation;
- New enhancements to tax data, both in the Corporate and Individual areas; and
- Recent refinements to disclosure avoidance techniques.

The 333-page publication may be purchased for \$15.00 a copy by writing to: Wendy Alvey, Statistics of Income Division (TR:S:P), 1111 Constitution Avenue, N.W., Washington, D.C. 20224. (Please make checks payable to "IRS Accounting Section.")

Call for AAAS Annual Meeting Proposals

If you have any suggestions for a session on statistics at the AAAS Annual Meeting in San Francisco, January 15-20, 1989, please submit your ideas (about 200 words) to Dr. Joan Rosenblatt, Deputy Director, Center for Applied Mathematics, National Bureau of Standards, Administration Building, Room A440, Gaithersburg, MD 20234, no later than March 10.

NBS-GWU Conference on "Uncertainty in Engineering Design"

The National Bureau of Standards and the George Washington University are hosting a conference on May 10 and 11, 1988, which will focus on problems of engineering design for quality and reliability. The aim is to provide an opportunity for engineers and statisticians to explore approaches to handling uncertainty in design and manufacturing. The Conference is to facilitate the interaction of these disciplines in the context of both product and process design. The program will include invited talks and open discussion led by selected participants. Participants will have an opportu-

nity to tour the NBS Advanced Manufacturing Research Facility.

The five sessions of the conference are being chaired by:

Dr. Gary McDonald, General Motors Research
Dr. J. Stuart Hunter, Princeton, New Jersey
Dr. Dennis Swyt, National Bureau of Standards
Professor Stephen Pollock, University of Michigan
Dr. Ragu Kacker, AT&T Bell Laboratories

The conference agenda and information on registration may be obtained from: Ms. Shirley Bremer, National Bureau of Standards, Bldg. 101, Room A337, Gaithersburg, MD 20234, 301/975-2845.

Short Course on Optimizing Computer Simulations

In response to demands from simulation designers and users, a two-day course is scheduled for April 11-12, and May 9-10, on *Optimizing Computer Simulations*. The topics include principles of experimental design to plan simulation runs, multivariate analysis for screening variables, response surface methods, and graphical interpretation. For those not actively using computer simulations, the course is also a good refresher for experimental design, analysis, and interpretation of results. Registration involves a fee; group discounts are allowed. For information and registration materials, please call: Pro-File Computer Institute (24 hours, 7 days), 703/281-8725. The course will be held at the Holiday Inn in McLean, Virginia, near Tysons Corner. It carries 1.2 Continuing Education credits.

Seminar Series: Advanced Topics in Survey Methodology

The USDA Graduate School's popular seminar series on Advanced Topics in Survey Methodology, first presented in the Fall of 1984, will be repeated in the Spring of this year. The series is intended for anyone who sponsors, designs, manages or works on any aspect of statistical surveys. It will provide insights into all phases of survey methodology, with leading practitioners as presenters and discussion leaders. Among the many topics to be included in the 1988 series are: total survey design, questionnaire development, interviewer training, treatment of missing data, cognitive aspects of surveys and survey processing on microcomputers. The seminar series is scheduled for Thursday evenings from April 7 through June 9. The fee will be \$249. For a brochure and further information, call the USDA Graduate School office on (202) 447-5885.

OTHER ANNOUNCEMENTS (continued)

Press Release on the 20th Interface Symposium

The Twentieth Symposium on the Interface of Computing Science and Statistics will be held at the Sheraton International Conference Center in Reston, Virginia on April 21-23, 1988. The Symposium is a long-standing interdisciplinary forum focusing on the interface between computing science and statistics. The focus of the 20th Symposium will be on computationally intensive methods in statistics. Professor Brad Efron of Stanford University will give the keynote address on this theme and sessions are organized with this theme in mind.

Sessions will include invited talks, contributed papers and exhibits. An opening night reception is planned as well as a banquet. An extensive exhibit area is also planned. Contributed presentations will be selected by the Program Committee and will last for 20 minutes. Authors who wish to contribute a paper should submit a written abstract no later than January 15, 1988. The abstract should be no longer than one page. Abstracts of invited and contributed papers will be available at the Symposium. Abstract and inquiries should be sent to: Professor Edward J. Wegman, Interface Symposium, P.O. Box 7460, Fairfax Station, VA 22039-7460, 703/323-2723.

Conference Proceedings will be published. Camera-ready copy of the contributed and invited papers will be due on June 1, 1988. The Proceedings will include both invited and contributed papers.

The Conference will be held at the Sheraton International Conference Center in Reston, VA (suburban Washington, D.C.) on the 21st through 23rd of April. April is an extremely attractive time in Washington coinciding with the blooming of the famous cherry blossoms. Free shuttle service is provided by the Sheraton to and from nearby Dulles Airport. A commercial airport bus service is available from Washington National Airport. Hotel rates are quite reasonable for the peak of the tourist season (\$79 for a single on Wednesday and Thursday and \$45 for a single on Friday and Saturday). A block of rooms has been reserved and attendees are expected to make their own reservations. Because this is a peak tourist season, early reservations are strongly encouraged. Reservations

can be made by calling (800) 325-3535 or (703) 620-9000. Make sure to identify yourself as being associated with the Interface Symposium. Registration and welcoming reception will take place on Wednesday, April 22.

The regular registration fee for members of the cooperating societies (ASA, IMS, SIAM, and ORSA) is \$105 and for non-members is \$130. A preregistration discount is being offered to those who register early. For registrations received before January 15, 1988, the registration fee will be \$95 for members of cooperating societies and \$120 for non-members. The registration fee will include a copy of the proceedings and the opening night reception. For further information, to be put on the INFA mailing list and/or to register, please contact Ed Wegman at the above address.

U. S. Census Bureau's Fourth Annual Research Conference

ARC IV is scheduled to begin Sunday evening, March 20, 1988, and run through 2:00 p.m. on Wednesday, March 23, 1988, at the National Clarion Hotel in Arlington, Virginia, USA.

The program focuses on "Improvements in Technology & Measurement Problems Related to Census and Survey Operations." The program will devote one session to each of 16 topics within the overall theme, and also include the Shirley Kallek Memorial Lecture. Session topics include: counting the hard-to-enumerate population; measurement models in undercount research; improving foreign trade statistics; statistical models for undercount adjustment; disclosure research; automated cartography; computer-assisted telephone interviewing (CATI); methods and software for survey data analysis; computer-assisted personal interviewing (CAPI); expert systems for matching and classifying; microeconomic panel surveys; standard industrial classification (SIC); demographic coverage improvement; seasonal adjustment and related research; issues in survey methodology; and quality control.

For additional information contact Maxine Anderson-Brown, Office of the Director, Bureau of the Census, Washington, D.C. 20233, 301/763-1150.

OTHER ANNOUNCEMENTS (continued)

National Bureau of Standards Speaker Series

The Statistical Engineering Division of the National Bureau of Standards is pleased to announce a series of three talks to be given at the Bureau of Standards in Gaithersburg, Maryland. All members of the Washington area statistical and scientific community are cordially invited to attend any or all of the talks. The first speaker, scheduled for March 31, will be Lucien Le Cam of the University of California at Berkeley who will speak on, "*Can the Misbehavior of Wald's*

Confidence Ellipsoids be Avoided?" The talk will be held in Room B119 of the Polymers Building, National Bureau of Standards at 2:00 p.m. Also scheduled to speak are:

Murray Rosenblatt, University
of California at San Diego -- April 26

James Berger, Purdue -- May 5

For further details concerning exact topic, time, and place please call Fran Weygand at 301/975-2838 or Marilyn Leach at 301/975-2839.



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