Small Area Estimation

The Washington Statistical Society and the Joint Program in Survey Methodology are co-sponsoring a short course, "Small Area Estimation". The short course will be held on May 22-23, 1995 at the Pentagon City Ritz Carlton. The instructors will be Wayne Fuller, J.N.K. Rao, Graham Kalton, and Wes Schaible. Wayne Fuller is a Distinguished Professor in the Department of Statistics and Economics at Iowa State University. J.N.K Rao is Professor of Statistics at Carleton University and a consultant to Statistics Canada. Graham Kalton is a Senior Statistician and Senior Vice President of Westat, Inc., and a Research Professor in the JPSM at the University of Maryland. Wes Schaible is the Associate Commissioner for Research and Evaluation, Bureau of Labor Statistics.

Sample surveys are routinely designed and analyzed to produce survey estimates for the population as a whole and for a range of major domains within that population. However, sample sizes are rarely large enough for conventional estimates to provide adequate precision for small domains. In particular, the demand for estimates for small geographic areas -- e.g., school districts, counties, states -- generally cannot be met by the use of conventional survey estimation procedures. Synthetic estimation, composite estimation, random effects models, and empirical and hierarchical Bayes methods have been applied to satisfy the demand for small area estimates. The course will review and illustrate the use of such modeling techniques for small area estimation.

Topics will include an overview of small area estimation, prediction theory methods and applications of small area estimators, the random model, empirical Bayes estimation, hierarchical Bayes estimation, and empirical evaluation of small area estimators on a business population.

The registration fee is $350 for non-students, and $200 for full-time students. For more information, see the enclosed flyer or contact the JPSM at (800) 937-9320.

WSS Seminars (All events are open to any interested persons)		
April		
5	Wed.	Statistical Image Analysis for Agriculture
11	Tues.	Model Free - Model Based Sampling
26	Wed.	A Bootstrap Variance Estimator for Systematic Probability Proportionate to Size Sample Designs (Latest Presentation in Methodology Seminar Series on Variance Estimation for Complex Surveys)
May		
5	Fri.	Statistics and the Question of Standards
30	Tues.	Presidential Invited Address: How Reporters can Tell Facts from Lies, How Statisticians can Help Them
Call (703) 803-8109 for up-to-date information.		

Announcements

Presidential Invited Address: How Reporters can Tell Facts from Lies, How Statisticians can Help Them

Hold a date!

Victor Cohn, former science editor for the Washington Post, has just agreed to give this year's Presidential Invited Address. Victor Cohn is currently working at the American Statistical Association and will talk about how statisticians can work with the media to ensure more accurate coverage of complex scientific subjects. The meeting will be chaired by WSS President, Sue Ahmed, and will be cosponsored by the Division of Science Resources Studies, National Science Foundation (NSF). The event is scheduled at NSF (adjacent to the Ballston Metro in Arlington, VA) on May 30, 1995 from 3:00 P.M. - 4:30 P.M. Refreshments will be served after the talk. Additional information will be included in the May newsletter.

Newsletter by Wire

Approximately 90 WSS members now receive the newsletter via electronic mail. These folks receive the newsletter by the 20th of the month prior and will save WSS substantial printing and postage costs--not to mention saving a tree!!

If you would like to receive the newsletter via electronic mail, please send a note to Vince Massimini (svm@mitre.org) with your name and Internet email address. If you need help figuring out what your address is, call Vince at 703-883-5893 for help. A dual mailing (surface and electronic) will be required for a few months until certain administrative changes can be completed with the surface mailing. Also, WSS will restrict the use of the electronic mailing list to the newsletter or related announcements.

We will eventually have a WWW URL, allowing you to access the newsletter via Mosaic or Netscape. This is a few months away, however. (Email will remain available for those without WWW access or who prefer email.)

This effort will provide for much more timely service to members and will save money. Please sign up for the newsletter by email. Tell a friend, also!!

Cultural & Demographic Data Conference

A one-day conference will be held on April 25, 1995 sponsored by The Federal Geographic Data Committee Subcommittee on Cultural and Demographic Data at the National Archives and Records Administration Conference Facility, College Park, MD. To register, contact Ms. Leslie Godwin, phone (301) 457-1056, fax (301) 457-4710, e-mail: lgodwin@census.gov. There is no registration fee.

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 April 12, 1995, the topic will be S-Plus 3.2, the latest version of the Windows statistical programming language. On May 10, 1995, the topic will be Idrisi, a reasonably priced PC GIS package.

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.

Program Abstracts

Topic: Statistical Image Analysis for Agriculture

Speaker(s):   Mike Craig, U.S. Department of Agriculture
                Martin Ozga, U.S. Department of Agriculture

Chair: Mark Pierzchala, U.S. Department of Agriculture

Date/Time: Wednesday, April 5, 1995, 12:30 - 2:00 P.M.

Location: USDA, South Building, Room 5152 (NASS Board Room), 12th and Independence Avenue,
                SW, Washington, DC (Orange/Blue Line--Smithsonian, Independence Ave., Exit).
                Government ID needed or sign in at the desk.

Sponsor: Statistical Computing Section

Abstract: PEDITOR is a modular system of PC programs written specifically to estimate crop acreage
                with measurable precision using satellite imagery combined with ground gathered survey data.
                PEDITOR has been under development within NASS for several years and portions and/or
                offshoots of it are available for other (non-PC) platforms. Currently, all PEDITOR functions
                can be accomplished with a PC under MS-DOS as the primary platform. One Landsat
                Thematic Mapper (TM) image as used by the PEDITOR system consumes 290 MB of disk
                space; as an example, the analysis of major Mississippi River Delta crop areas in Arkansas
                requires twelve TM images or 3.5 GB of storage. The ground data from sampled land areas
                is collected during an annual NASS operational survey; for Arkansas there are about 200
                samples (known as segments) in the major crop regions. Each segment, with its field
                boundaries and corresponding tabular data, generates at least five computer files during the
                estimation process. Field boundaries from sample segments are located in the satellite data
                and used with clustering and pattern recognition techniques to train the computer to
                recognize crop types. Maximum likelihood classification is applied to entire scenes to cover
                large areas such as entire states or major portions of states. Regression estimation is used
                to generate estimates of crop acreage for major crops both for large areas and by county.
                Area displays are provided on the PC screen and on color printers to show crop distribution.
                Current processing is in the Mississippi Delta region of Arkansas, but in the past other
                larger areas have been processed.

Program Abstracts (Cont'd)

Topic: Model Free - Model Based Sampling

Speaker: Alan Dorfman, Bureau of Labor Statistics

Chair: Sandra A. West, Bureau of Labor Statistics

Date/Time: Tuesday, April 11, 1995, 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: Can inference from a sample to the population sampled be free of assumptions concerning the variable(s) of interest? In other words can survey inference be model-free? If it can be, there are two major advantages: (1) since models must as a rule be the construct of the analyst, to be model-free is to be free of the personal judgment of the analyst, that is, to be objective; furthermore, (2) if the inference does not require a model, but is based only on pre-existing fact (the sampling design) then the inference is automatic: put in the sample data into the pre-existing inference machinery, and out come estimates, like bread out of a bread machine. Even if one entertains the idea that a model is indispensable, one might still seek to be as objective as possible, and as automatic as possible. This talk discusses one attempt in this direction, namely the use of non-parametric regression as a means to estimate means or totals of the variate of interest, when population values of an auxiliary variable are available. The resulting estimator is described, and its advantages and disadvantages are assayed relative to other well known estimators, including some that have an equal claim to be considered model-free.

Program Abstracts (Cont'd)

Topic: A Bootstrap Variance Estimator for Systematic Probability Proportionate to Size Sample Designs (Latest Presentation in Methodology Seminar Series on Variance Estimation for Complex Surveys)

Speaker: Steven F. Kaufman, National Center for Education Statistics

Chair: Michael P. Cohen, National Center for Education Statistics

Date/Time: Wednesday, April 26, 1995, 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 large multipurpose surveys, it is common to select the sample systematically. In establishment surveys, it is common to select the sample systematically proportional to some measure of size (PPS) which is correlated with an important variable of interest. Assuming the frame is sorted in a useful deterministic manner, systematic sample methodologies provide an additional control on the sample allocation, beyond the control provided from the stratification. This makes it less likely to select a 'bad sample'. This should reduce the variability of the estimates as compared to a comparable nonsystematic selection procedure. The problem with systematic samples is that variance estimates are biased. A commonly used variation of the balanced half-sample variance method (BHR) used with systematic sampling, is to pair PSUs in the original order of selection, assume that each pair represents a stratum and selection is with replacement. If 10 units are selected systematically from 100, using the sampling scheme implied by this model, there are over 10 trillion possible samples. In reality, there are only 10 possible samples. If the initial sorting is reasonable, there is little reason for the BHR variance estimator to be close to the true variance.

The speaker will present a bootstrap variance estimator that uses a bootstrap frame generated from the distribution of the sample weight. A number of bootstrap samples are selected from the bootstrap frame using the same systematic sampling scheme as in the original sample. The bootstrap variance estimator performs better than the BHR variance estimator with respect to coverage rates and mean square error. This will be demonstrated with a number of PPS sample designs. The bootstrap estimation procedure generates a set of replicate weights that can be used with any standard BHR variance package. Once the replicate weights are generated, the bootstrap estimates are as easy to compute as any other BHR variance estimate. In fact, the estimator has been implemented in the National Center for Education Statistics' Schools and Staffing Survey.

Program Abstracts (Cont'd)

Topic: Statistics and the Question of Standards

Speaker: Professor Stephen Stigler, University of Chicago

Chair: Joan Rosenblatt, National Institute of Standards and Technology (NIST)

Date/Time: Friday, May 5, 1995, 3:00 - 4:00 P.M. (Reception Follows)

Location: Green Auditorium, NIST (From Washington, coming northbound on Rt. 270, enter the Collector/Distributor lanes to Exit 9 and take Exit 10, Rt. 117 West. Turn left at the first traffic light and proceed through the main gate (Gate A). If coming southbound on Rt. 270, take Exit 11B, Rt. 124 West. Go to the lobby of the Administration Building for directions to the Green Auditorium. For more information, contact Kaye Wade (301) 975-2838.

Sponsor(s):   NIST Statistical Engineering Division
Physical Science & Engineering Section
NIST Standards Alumni Association

Abstract: This talk, with an introduction by Joan Rosenblatt, will honor the memory of Churchill Eisenhart, Founder of the NIST Statistical Engineering Division in 1947. Churchill made fundamental contributions to statistics for measurements, quality, and standards. Professor Stephen Stigler will survey several historical themes associated with the setting and maintenance of standards. A number of examples drawn from the past two centuries, not all successes, will illustrate the importance of standards in the history of statistics and of the importance of statistics in the history of standards.

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

Items for publication in the June 1995 WSS NEWS should be submitted no later than April 25, 1995. FAX items to:

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

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

Bell Atlantic seeks a Statistical Analyst to work in the Washington, D.C. office of our Business Research unit. This position involves managing all aspects of statistical studies including the development of study proposals, mathematical, statistical and econometric models; the design and analysis of scientific samples; and the documentation of study methodology and results. QUALIFICATIONS INCLUDE: related marketing research experience, and PC proficiency with SPSS, LOTUS and WP. Masters degree in Statistics is desired. Candidates with Masters in Mathematics, Marketing, Econometrics or Engineering and significant coursework and/or experience in Statistical applications will be considered. For consideration, send your resume with salary requirements to: Paula Wilder, Bell Atlantic, One Bell Atlantic Plaza, 1310 N. Court House Road, 9th Floor, Arlington, VA 22201.

Statisticians

The U.S. Department of Justice, Bureau of Justice Statistics is accepting applications for two Statistician positions at the GS- 7/9/11/12 level. Statisticians will design and conduct short and long term projects which relate to the prevalence and consequences of crime and the disposition and handling of persons subject to the criminal justice system; make recommendations for improving survey methodology, format and terminology of survey instruments; and assist in the monitoring, oversight, and assessment of analyses and reports developed. Qualifications: Basic requirements include a degree that includes 15 semester hours in statistics (or in mathematics and statistics, provided at least 6 semester hours were in statistics), and 9 additional semester hours in one or more of the following: Social Sciences, Physical and Biological Sciences, Medicine, Education, or Engineering. Applicants should have progressively responsible experience relating to survey methodology, statistical tests and analytic techniques using statistical software, data analysis, and written and verbal presentation of findings. How to Apply: Contact the Office of Justice Programs, Office of Personnel at (202) 307-0730 to request job announcement #95-08U and application instructions. Salary: $24,441 to $56,362 and is commensurate with qualifications. Closing date: 04/07/95 by 4:30 p.m.

Visiting Assistant Professor of Statistics

The Department of Statistics of the George Washington University invites applications for a one-year position as Visiting Assistant Professor of Statistics. Candidates should have a Ph.D. in statistics with a strong background in computationally intensive statistics. The successful candidate will be expected to teach courses in basic programming and statistical computing, and in other areas according to his/her interests. Candidates should send applications including curriculum vitae, relevant reprints and three letters of reference to Search Committee, Department of Statistics, George Washington University, Washington, DC 20052.

President		Past President		President-Elect	
Sue Ahmed	(202) 219-1781	Michael L. Cohen	(202) 334-3765	Ron Fecso	(703) 235-5213

Secretary		Treasurer	
Ruth Ann Killion	(301) 457-1030	Carolyn Shettle	(703) 306-1780

WSS Program Chairs

Agriculture & Natural Resources
Carol House (202) 720-3895
John Herbert (202) 586-4360

Economics
Linda Atkinson (202) 219-0505
Art Kennickell (202) 452-2247

Methodology
Michael P. Cohen (202) 219-1917
Sandra West (202) 606-7384

Physical Sciences & Engineering
Tom Mazzuchi (202) 994-7528
Pat Massimini (703) 883-6490
Vince Massimini (703) 883-5893

Quality Assurance
Philip Gbur (301) 457-4206
Amrut Champaneri (202) 268-2299

Social & Demographic Statistics
Mike Horrigan (202) 606-5907
Michael Greene (703) 247-1575

Statistical Computing
Jim Gentle (703) 993-1994
Mark Pierzchala (703)235-5218 X114

Short Courses
Glenn White (202) 874-1114
Jeri Mulrow (202) 874-0434

Public Health and Biostatistics
Sally Hunsberger (301) 496-5905
Bill Rosenberger (301) 881-9260

Data Collection Methods
Theresa DeMaio (301) 457-4894
Mary Grace Kovar (202) 223-6040
Roger Tourangeau (202) 223-6040

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 (703) 549-1120

Videotapes
Ed Milton (202) 366-2751

Quantitative Literacy
Shail Butani (202) 606-6347

Local Arrangement
Robie Sangster (202) 606-7517

P.O. Box 752
Suitland, MD 20752

WASHINGTON STATISTICAL SOCIETY

POSTMAN: DATED MATERIAL
Please deliver by April 1, 1995