



# WSS NEWS

WASHINGTON  
STATISTICAL  
SOCIETY

October 1993

## Third Annual Morris Hansen Memorial Lecture

WSS is pleased to announce that the third annual series of lectures to honor the memory of Morris Hansen has been set for Thursday, November 4, 1993, in the Jefferson Auditorium of the Department of Agriculture, South Building.

The speaker will be Norbert Schwartz, Department of Psychology, University of Michigan. He will speak about "What Respondents Learn from Questionnaires: The Survey Interview and the Logic of Conversation". From a social-cognitive perspective, the survey interview is best considered as an ongoing conversation that includes the intertwined tasks of question comprehension, recall of information from memory, computation of an answer, and reporting this answer to the interviewer. Formal aspects of questionnaire design influence respondents' interpretation of the question, determine which information they use in making a judgment, and which responses they consider appropriate to report.

This lecture series was established in 1990 by a financial grant from Westat, Inc., to honor Morris Hansen, who made significant contributions to survey sampling and statistical methods during his long and distinguished career at the Census Bureau and at Westat, Inc. Further details can be found on pages 8 and 9 of this newsletter.

<b>WSS Seminars</b>	
(All events are open to any interested persons)	
<b>October</b>	
13	Wed.
Hypothesis Testing with Complex Survey Data: The Use of Classical Quadratic Test Statistics (6 in the series on the analysis of survey data)	
13	Wed.
Reducing Respondent Burden Without Increasing Variance	
27	Wed.
A Bayesian Approach to the Synthetic Estimator: With Empirical Application to the National Health Interview Survey (NHIS) (First Presentation in a New Methodology Seminar Series on Small Domains)	
27	Wed.
Forecasting Crop Yields: USDA's Objective Yield Program	
28	Thurs.
The Reconciled Reinterview: How Good Are the Data for Estimating Response Bias and Validity	
<b>November</b>	
4	Thurs.
<b>Morris Hansen Lecture, What Respondents Learn from Questionnaires: The Survey Interview and the Logic of Conversation</b>	

## Announcements

### **Annenberg Video Tape Series**

Last year, WSS purchased the Annenberg video tape series, **Against All Odds**. The series consists of 26 programs that explore a variety of statistical subjects including topics such as probability, experimental design, sampling, and tests of significance. While the programs follow a general progression, programs do not have to be viewed in exact order. Also, while the program content is primarily at a level for audiences with limited or no statistical experience, most programs do provide information useful to those with more advanced statistical backgrounds. Each program is about 30 minutes in length, and each tape contains two programs.

In addition to **Against All Odds**, WSS also has video tape copies of the first two annual Morris Hansen Lectures. Video tapes for both **Against All Odds** and the Morris Hansen Lectures can be borrowed from WSS. For more information, contact Ed Milton at (202) 366-2751, Fax (202) 366-7149.

### **Research and Evaluation Seminar Series**

The Bureau of Labor Statistics will host the following lecture as part of the Research and Evaluation Seminar Series: "Demographics, Sectoral Change, and Changing Relative Wages: A Regional Approach"; Speaker: Lynn Karoly, RAND Corporation and Brookings Institute (joint work with Jacob Kierman); Friday, October 15, 1993, 10:00 a.m. The seminar will be held in the BLS Cognitive Lab, 2990 Postal Square Building, 2 Massachusetts Avenue NE. (Enter at First Street.) Please direct any questions to Patricia O'Neal at (202) 606-7391.

### **SIGSTAT Meetings**

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 meetings: on October 13, 1993, "OS/2 SAS 6.08", a tour of the features of SAS under OS/2 2.1; and on November 10, 1993, "Axum 3.0", technical graphics package with WYSIWYG graph editor, new features include nonlinear regression and curve fitting and more programming statements.

All meetings are scheduled for Wednesdays 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.

### **Public Data in the 90's**

The Association of Public Data Users (APDU) will hold a conference, "Public Data in the 90's: Applications, Opportunities, and Challenges" on November 1-3, 1993. The conference will be held at Sheraton City Centre, 1143 New Hampshire Avenue NW, Washington, DC 20037, (202) 775-0800, near the Foggy Bottom Metro stop. Registration fee for APDU Members is \$290, non-members \$490. Further information may be obtained by contacting APDU at Telephone: (609) 258-6025, Fax: (609) 258-3943, INTERNET: [apdu@pucc.princeton.edu](mailto:apdu@pucc.princeton.edu), BITNET: [APDU@PUCC](mailto:APDU@PUCC).

## Program Abstracts

- Topic:** Hypothesis Testing with Complex Survey Data: The Use of Classical Quadratic Test Statistics (6 in the Series on the Analysis of Survey Data)
- Speaker:** Barry T. Graubard, National Cancer Institute
- Chair:** Phillip S. Kott, National Agricultural Statistics Service
- Day/Time:** Wednesday, October 13, 1993, 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 Ave. and North Capitol St. Federal government employees show ID; nongovernment employees call Ed Riddick at (202) 606-7376 to add name to visitors' list.
- Sponsor:** Methodology Section
- Abstract:** Sample surveys often have complex sample designs involving stratification, multiple stages, and differential selection probabilities. Suppose one is interested in using complex survey data to test the null hypothesis that a  $p$ -dimensional parameter is equal to zero. The usual design-based Wald statistic can have very low power when the number of clusters in the first stage of sample selection is small, while  $p$  is large.
- In this talk, a class of alternative test statistics will be presented which use classical quadratic test statistics with replication methods to approximate their distribution. The Fay jackknife and the two Rao-Scott procedures fall into this class. Modified versions of the Fay jackknife will be proposed which simulations suggest are better than the original or the Rao-Scott procedures for testing hypotheses about vectors of means and vectors of linear regression coefficients. Finally, an application will be given for testing the informativeness of the sample weights in a linear regression.

## Program Abstracts (Cont'd)

- Topic:** Reducing Respondent Burden Without Increasing Variance
- Speakers:** Charles Perry, National Agricultural Statistics Service  
Jameson Burt, National Agricultural Statistics Service  
William Iwig, National Agricultural Statistical Service
- Chair:** Cynthia Z. F. Clark, National Agricultural Statistics Service
- Day/Time:** Wednesday, October 13, 1993, 12:30 - 2:00 PM
- Location:** South USDA Building, 12th Street and Independence, NW, Washington, DC (Blue/Orange Line--Smithsonian, Independence Ave. Exit), Room 4302. Call Carol House if additional information is needed (202-720-3895).
- Sponsor:** Agriculture & Natural Resources Section
- Abstract:** The National Agricultural Statistics Service (NASS) surveys the United States population of farm operators numerous times each year. The list components of these surveys are conducted using independent designs, each stratified differently. By chance, NASS samples some farm operators in multiple surveys, producing a respondent burden concern. Two methods are proposed that reduce this type of respondent burden. The first method uses linear integer programming to minimize the expected respondent burden. The second method samples by any current sampling scheme, then within classes of similar farm operations, it minimizes the number of times that NASS samples a farm operation for several surveys. The second method reduces the number of times that a respondent is contacted twice or more within a survey year by about 70 percent. The first method will reduce this type of burden even further.

## Program Abstracts (Cont'd)

- Topic:** A Bayesian Approach to the Synthetic Estimator: With Empirical Application to the National Health Interview Survey (NHIS) (First Presentation in a New Methodology Seminar Series on Small Domains)
- Speaker:** David A. Marker, Westat, Inc.
- Chair:** Michael P. Cohen, National Center for Education Statistics
- Day/Time:** Wednesday, October 27, 1993, 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 Streets. 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 synthetic estimator has been proposed for many applications where the survey data are too sparse to produce direct, design-unbiased estimates with the desired level of accuracy. A Bayesian framework will be presented in which the synthetic estimator is the Bayes estimate under a series of limiting conditions, and for which a general form is appropriate for other situations.  
The final part of the presentation is an empirical comparison of estimators using NHIS data. Estimates based on a single year's data will be shown for each of the 50 States and the District of Columbia. A procedure for developing state-specific design-based mean squared errors for these model-based estimators will be introduced.

## Program Abstracts (Cont'd)

- Topic:** Forecasting Crop Yields: USDA's Objective Yield Program
- Speakers:** Michael Steiner, National Agricultural Statistics Service  
Tom Birkett, National Agricultural Statistics Service  
Denise Myers, National Agricultural Statistics Service
- Chair:** Theresa Holland, National Agricultural Statistics Service
- Day/Time:** Wednesday, October 27, 1993, 12:30 - 2:00 PM
- Location:** South USDA Building, 12th Street and Independence, NW, Washington, DC (Blue/Orange Line--Smithsonian, Independence Ave. Exit), Room 4302. Call Carol House if additional information is needed (202-720-3895).
- Sponsor:** Agriculture & Natural Resources Section
- Abstract:** The United States Department of Agriculture began publication of crop statistics in 1863, and began yield forecasts in 1910. This year these forecasts have been a critical part of assessing flood damage in the Midwest. The Objective Yield program uses surveys conducted during the growing season to collect plant counts and measurements to develop linear forecasting models of yield for major crops. This presentation discusses the history of and procedures used in this yield forecasting program. It describes the forecasting models, showing key survey variables and examining how they relate to final yield. The presentation also discusses ongoing research to improve the accuracy of early season forecasts by adding a precipitation term to the model.

## Program Abstracts (Cont'd)

- Topic:** The Reconciled Reinterview: How Good Are the Data for Estimating Response Bias and Validity
- Speaker:** Paul Biemer, Research Triangle Institute
- Chair:** Joe Fred Gonzalez, Jr., National Center for Health Statistics
- Day/Time:** Thursday, October 28, 1993, 10:00 - 11:30 A.M. (Note Special Time.)
- Location:** National Center for Health Statistics, Auditorium--Presidential Building, 11th Floor, 6525 Belcrest Road, Hyattsville, MD
- Sponsors:** Office of Research and Methodology, NCHS and Data Collection Methods
- Abstract:** A number of surveys conducted by Federal Statistical agencies use reconciled reinterviews for response validation purposes. This type of reinterview involves repeating some of the same questions asked in the original interview. If there are differences between the first and second response, the reinterviewer tries to determine what the correct response should be. The assumption is that this procedure produces data that may be considered almost error free for purposes of estimating response biases. This presentation will consider this assumption and represent evidence that it may be substantially violated in many applications. The results of the research reported in "On the Quality of Reinterview Data with Application to the Current Population Survey," Biemer and Forsman, JASA, 87, pages 915-923 will be examined and other evidence will also be presented. Several reinterview response theories which are suggested by these data and which are consistent with anecdotal evidence will also be discussed. Finally, some preliminary results of a study comparing reconciled reinterview approach with no reconciliation, cognitive reinterview approach will be presented and discussed.

## Program Abstracts (Cont'd)

### Third Annual Morris Hansen Lecture

- Topic:** What Respondents Learn from Questionnaires:  
The Survey Interview and the Logic of Conversation
- Speaker:** Norbert Schwarz, University of Michigan
- Discussants:** Eleanor Singer, Columbia University and U. S. Census Bureau  
David Cantor, WESTAT, Inc.
- Chair:** Nancy Kirkendall, Department of Energy
- Date/Time:** Thursday, November 4, 1993, 3:30 p.m. (Note **Special Time**)
- Location:** Jefferson Auditorium, South USDA Building, 12th Street and Independence, NW  
Washington, DC (Blue/Orange Line--Smithsonian, Independence Ave. Exit)
- Co-Sponsor:** National Agricultural Statistics Service, U. S. Department of Agriculture
- Reception:** Following the lecture, 5:30-6:30 p.m.
- Abstract:** From a social-cognitive perspective, the survey interview is best considered as an ongoing conversation that includes the intertwined tasks of question comprehension, recall of information from memory, computation of an answer, and reporting of this answer to an interviewer. The contributions of the interviewer/researcher include apparently formal aspects of the questionnaire, such as the response alternatives provided to respondents, and respondents treat these contributions as they treat any other contribution to an ongoing conversation. That is, they proceed on the basis of the cooperativeness principle that governs the conduct of conversation in everyday life.

This principle holds that every contribution should be relevant to the aim of the ongoing conversation, and that speakers should not provide information that is irrelevant to the task at hand. Moreover, speakers are required to make their contribution informative, that is, to provide information that the recipient needs rather than information that the recipient already has--or may take for granted.



## **Program Abstracts (Cont'd)**

Conforming to these conversational norms requires a considerable degree of inference to determine which information is "informative" in the specific context given. In the survey interview, this context is, in part, constituted by the questionnaire. Apparently formal aspects of questionnaire design, therefore, influence respondents' interpretation of the question, determine which information they use in making a judgment, and which responses they consider appropriate to report.

This framework is applied to the use of open and closed question formats, precoded response alternatives and rating scales, the impact of question order, unintended side-effects of assurances of confidentiality and related issues. Experimental research demonstrates that apparently minor changes of supposedly formal features of questionnaire design may strongly affect the obtained responses, resulting, for example, in differences of up to 30 percentage points in factual reports of behaviors or in correlations of .1 or of .7 between a behavioral report and related attitudes, depending on the choices made at the questionnaire construction stage.

**Invite a friend to join WSS this fall!**

For membership information call:

Renee Miller 202-254-5507

OR

Antoinette Martin 202-254-5409

## Announcements (Cont'd)

### Statistical Methods in Software Engineering

The panel on Statistical Methods in Software Engineering has organized a public forum to gather information as background to preparing a report on problem areas in software engineering to which modern statistical methodology can be fruitfully applied. Topics to be addressed will include: software dependability, software metrics, software visualization, software process, software testing, case studies, and nonstandard SE methods. Speakers will include David Card (Computer Sciences Corporation), Theodore Keller (IBM), and Madhav Phadke (Phadke Associates).

The forum will be held on October 11-12, 1993 in the auditorium, National Academy of Sciences, 2100 C Street NW, Washington, DC from 8:00 a.m. to 5:00 p.m. For further information, please contact John R. Tucker at Email: JTUCKER@NAS.EDU, Fax: (202) 334-1597, Telephone: (202) 334-2422.

### Joint University of Maryland - University of Michigan Program in Survey Methodology

The Joint University of Maryland - University of Michigan Program in Survey Methodology (JPSM) announces four short courses to be held in the Fall, 1993 and Winter, 1994 in the Washington, D.C. area, including:

"Introduction to Questionnaire Design," November 17-18, 1993, at the Capital Hyatt taught by Nora Cate Schaeffer;

"Cognitive and Communicative Aspects of Survey Measurement," December 6-7, 1993, at the Capital Hyatt taught by Norbert Schwartz;

"Measurement Errors in Surveys," January 25-26, 1994, at the University of Maryland Conference Center taught by Paul Biemer;

"Self-Administered/Mail Surveys," February 23-24, 1994 at the Capital Hyatt taught by Don Dillman.

Call the JPSM at 1-800-937-9320 for more information about the courses and registration.

## Obituaries

### Addendum re: Max Conklin

Contributions in honor of Max Conklin, whose obituary appeared in the September 1993 *WSS News*, should be made to the Julius Shiskin Award. Checks payable to WSS/Julius Shiskin Award can be sent to: Ruth Ann Killion, Washington Statistical Society, P.O. Box 752, Suitland MD 20752.

## 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/Biostatistician

Nonprofit highway safety research group needs statistician to develop practical approaches to complex problems. Design projects, consult

## Employment Column (Cont'd)

internally, manage contract research. Requirements: excellent communications skills; familiarity with quasi-experimental design, categorical data analysis, generalized linear modeling, time series analysis; advanced statistics degree; journal publications. Excellent salary, benefits, and technical support. Apply to: Dr. Allan Williams; Senior Vice President, Research; Insurance Institute for Highway Safety; 1005 N. Glebe Road; Arlington, VA 22201.

### Biostatistician/Senior Researcher

Westat, Inc. has several new openings as follow:  
 1) Biostatistician: Qualified candidates should have Ph.D. training in biostatistics; experience in Phase 1-3 clinical trials and submissions to FDA in support of new drug applications; and a solid publication record. Demonstrated leadership ability in conducting research plus excellent written and verbal skills is required. Experience and interest in studies of HIV or chronic disease is desirable.  
 2) Senior Researcher: Qualified candidates should have a Ph.D. in epidemiology, biostatistics, or other relevant discipline and preferably have five or more years of related experience. A background in clinical trials/epidemiology, with subject knowledge of HIV, is highly desirable. Other essential qualifications include a good understanding of data management issues, the ability to work well in a

collaborative arrangement with clinicians, epidemiologists, and data management staff, plus strong writing and organization skills. Interested candidates can send resume and salary history to: WESTAT, Inc., Dept. WSS; 1650 Research Boulevard; Rockville, Maryland 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 #94-02

Applied Mathematician with a background in mathematical statistics and operations research. Strong ability to conceptualize problems and communicate mathematical techniques to non-technical management or professionals. Nine years experience with various applications in economic forecasting, resource allocation, quality assurance/reliability, and inferential statistics. Analyses performed with SAS on both mainframe and microcomputer environments. BA Mathematical Statistics; pursuing MS Operations Research.

### \* \* \* Note from WSS NEWS Editors \* \* \*

Items for publication in the December 1993 WSS NEWS should be submitted no later than October 26, 1993. FAX items to:

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 FAX: (202) 586-0018

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