WASHINGTON STATISTICAL SOCIETY

NEWSLETTER

November 6	Tuesday	Evaluation of Classification Tree Methodology Used for the Development of the Census of Agriculture Mail List
November 7	Wednesday	Estimating a System of Linear Equations with Survey Data
November 8	Thursday	Discrete Structured Classification
November 8	Thursday	Hierarchical and Empirical Bayes Estimation of All Employee Links
November 14	Wednesday	Investigation of Nonresponse Bias in the Hispanic Health and Nutrition Examination Survey
November 16	Friday	Calculations and Theory of a Model of Depreciation
November 20	Tuesday	Measurement Error in Surveys

ANNOUNCEMENTS

Quantitative Literacy Interest Group Request for Volunteers

In late spring the WSS Quantitative Literacy (QL) Group, with the assistance of Katherine Rowe, Coordinator of ASA QL activities, mailed a questionnaire to Washington Metropolitan Area school districts to solicit the views of math officials of those districts as to possible services WSS could provide for them in furthering QL in local schools. In August each school district was given the name and telephone number of a QL member who would serve as a contact person for that district.

On September 21, 1990 Shail J. Butani of WSS met with the four area Math Supervisors and the Math Director of Fairfax County. These officials indicated that they were very much interested in incorporating statistics and probability into their middle and high school curriculum. They wanted to know how this could best be accomplished. They felt that for at least the time being their standards for grades K-6 were at least adequate. During a brainstorming session the Fairfax officials expressed interest in the following: a QL workshop for middle and possibly high school teachers; a presentation or a workshop at various math conferences; field trips for students to various organizations, in particular the National Institute for Standards and Technology, the Naval Research Laboratory, and NASA; and speakers for career days, math club meetings, classroom visits, or other appropriate occasions. They also requested us to review their math syllabus for grades K-6.

WASHINGTON STATISTICAL SOCIETY PROGRAM CHAIRS

Agriculture & Natural Resources		Economics		Statistical Computing	
Cynthia Clark	763-8558	John Ruser	523-1347	Nancy Flournoy	885-3127
John Herbert	532-4544	Neil Ericsson	452-3709	Sylvia Leaver	272-2350
		Methodology			
Social & Demographic Statistics		Sam Slowinski	452-2622	**Quality Assurance**	
Harvey Schwartz	443-6990	Sue Ahmed	357-6781	Stanley Freedman	586-2038
Tom Dietz	323-2916			John Galvin	272-5066
		Public Health & Biostatistics			
		Ed Lakatos	496-5905		
Short Courses		Gordon Lan	881-9260	**Newsletter Editor**	
Glenn White	763-7524			Stephen H. Cohen	523-7551
Donald Gantz	764-6565	**Physical Sciences & Engineering**			
Brad Pafford	447-3623	Nozer Singpurwalla	994-7515	**Employment**	
Sid Schwartz	268-3490	Julia Abrahams	696-4320	Bill Arends	447-6812

PROGRAM ABSTRACTS

TOPIC: EVALUATION OF CLASSIFICATION TREE METHODOLOGY USED FOR THE DEVELOPMENT OF THE CENSUS OF AGRICULTURE MAIL LIST

SPEAKER: Richard Schmehl

CHAIR: Cynthia Clark

DISCUSSANT: Jeff Geuder

DATE & TIME: Tuesday, November 6, 1990; 12:30 to 2:00 p.m.

LOCATION: Room 4302, Agricultural South Building, 14th & Independence, S.W. Washington, D.C.

SPONSOR: Agriculture and Natural Resource Section

ABSTRACT: Classification tree methodology was applied to the preliminary mail list for the 1987 Census of Agriculture to group mail list addressees by probability of operating a farm. Geographic area, address source list, and agricultural sales level characteristics from the 1982 mail list and farm status from the 1982 census were used to define the groups. Groups were ranked in descending order according to their proportion of farms. The 1987 final census mail list was composed of the 4.1 million addresses in the highest ranking groups with 0.9 million records in the lowest ranking of these groups receiving the short census report form. A sample of addresses from the 200,000 records eliminated from the list were mailed an abbreviated survey questionnaire to determine whether the addressee operated a farm. The actual proportion of 1987 census mail list addresses operating farms within each group was determined. This proportion was compared with the predicted proportion for both list addresses dropped from the census data collection and those included in the census. This paper discusses the evaluation methodology and the results.

TOPIC: ESTIMATING A SYSTEM OF LINEAR EQUATIONS WITH SURVEY DATA

SPEAKER: Phillip S. Kott, National Agricultural Statistics Service - USDA

CHAIR: Sam Slowinski, Board of Governors of the Federal Reserve System

DISCUSSANT: Richard Nehring, Economic Research Service - USDA

DATE & TIME: Wednesday, November 7, 1990; 12:30 to 2:00 p.m.

LOCATION: Room 4302, Department of Agriculture, South Building, 14th and Independence, S.W., Washington, D.C.

SPONSOR: Methodology Section

ABSTRACT: This paper develops a framework for estimating a system of linear equations with survey data. Pure design-based sample survey theory makes little sense in this context, but some of the techniques developed under this theory can be incorporated into robust model-based estimation strategies. Variance estimators with the form of the single equation "linearization" estimator are nearly unbiased under many complex error structures. Moreover, the inclusion of sampling weights in regression estimation can protect against the possibility of missing regressors. In some situations, however, the existence of missing regressors can make the estimation of a system of equations ambiguous.

PROGRAM ABSTRACTS (continued)

TOPIC:	**DISCRETE STRUCTURED CLASSIFICATION**
SPEAKER:	Neil L. Gerr, Mathematical Sciences Division, Office of Naval Research
CHAIR:	Peter Arzberger, National Science Foundation
DATE & TIME:	Thursday, November 8, 1990; 12:00 to 1:00 p.m. (Please note special time.)
LOCATION:	George Washington University, 707 22nd Street, N.W., Room 301 (between G & H, near Foggy Bottom Metro stop)
SPONSOR:	Physical Sciences and Engineering Section
ABSTRACT:	A new paradigm for pattern recognition and data fusion based on modeling, clustering, and consensus formation in spaces of discrete structures will be described. Examples of how the paradigm may be used to perform passive and actual signal classification and to synthesize stereo vision from multiple images illustrate the approach.

TOPIC:	**HIERARCHICAL AND EMPIRICAL BAYES ESTIMATION OF ALL EMPLOYEE LINKS**
SPEAKER:	Malay Ghosh, ASA/NSF/BLS Senior Research Fellow, BLS (on leave from the University of Florida, Department of Statistics)
DATE & TIME:	Thursday, November 8, 1990; 1:30 to 2:30 p.m. (Please note special time.)
LOCATION:	Room 2437, GAO Building, 441 G Street, N.W., Washington, D.C. (Sign in at guard desk and state purpose and room number of visit.)
ABSTRACT:	The Bureau of Labor Statistics provides monthly sample-based estimates of employment in non-agricultural establishments. The source of these data is the Current Employment Survey (CES), also known as the 790 survey. Often, however, the CES estimates are based only on a few samples. This phenomenon reduces the reliability of these estimates, and generates the need for composite estimation, or borrow strength from other sources. We have provided in this paper hierarchical and empirical Bayes methods to produce such composite estimates. The methods are applied to the analysis of several data sets. The composite estimates are found to improve on the CES estimates most of the time.

TOPIC:	**INVESTIGATION OF NONRESPONSE BIAS IN THE HISPANIC HEALTH AND NUTRITION EXAMINATION SURVEY**
SPEAKERS:	Ronald Forthofer, University of Texas, School of Public Health and Michael Rowland, National Center for Health Statistics
CHAIR:	Joe Fred Gonzalez, Jr., Office of Research and Methodology, NCHS
DISCUSSANT:	Robert J. Casady, Senior Mathematical Statistician, Bureau of Labor Statistics
DATE & TIME:	Wednesday, November 14, 1990; 12:30 to 2:00 p.m.
LOCATION:	Room 2736, GAO Building, 441 G Street, N.W., Washington, D.C. (Sign in at guard desk and state purpose and room number of visit.)
SPONSORS:	Office of Research and Methodology, NCHS and the Washington Statistical Society
ABSTRACT:	An investigation of nonresponse bias in the Cuban, Mexican American and Puerto Rican portions of the Hispanic Health and Nutrition Examination Survey (HHANES) of 1982-84 has been conducted. This study includes an investigation of potential nonresponse bias to the household interview and physical examination as well as an investigation of the

PROGRAM ABSTRACTS (continued)

appropriateness of the standard nonresponse weighting adjustments. An exploratory data analysis approach was used to screen demographic and medical history variables as predictors of nonresponse. A preliminary CHAID analysis (chi square automatic interaction detection) was performed to identify predictors followed by a more refined log-linear analysis. The appropriateness of the HHANES weighting adjustments was evaluated through a consideration of the effects of systematic nonresponse on point estimates, confidence intervals and correlation coefficients.

TOPIC:	**CALCULATIONS AND THEORY OF A MODEL OF DEPRECIATION**
SPEAKER:	M. Ishaq Nadiri, New York University
DATE & TIME:	Friday, November 16, 1990; 10:00 to 11:30 a.m. (Please note special time.)
LOCATION:	Room 2437, GAO Building, 441 G Street, N.W., Washington, D.C. (Sign in at guard desk and state purpose and room number of visit.)
SPONSORS:	WSS Economics Section and Office of Economic Research, Bureau of Labor Statistics
ABSTRACT:	Studies of the firm's demand for factor inputs often assume a constant rate of utilization of the inputs and ignore the fact that the firm can simultaneously choose the level and the rate of utilization of its inputs. In particular, the literature on dynamic factor demand models has, until recently, largely overlooked the issue of capital utilization and/or did not distinguish carefully between the distinct concepts of capital and capacity utilization within the context of a dynamic factor demand model by adopting a modeling framework within which the firm combines its beginning-of-period stocks with other inputs to produce its output as well as its end-of-period stocks. This modeling framework was first adopted by Epstein and Denny (1980).

In contrast to that work, we consider not only the firm's demand for its variable factors but also the demand for its quasi-fixed factors. Furthermore, we derive measures of productivity and capacity utilization for the adopted modeling framework. Given that the depreciation rate is endogenous, a consistent capital stock series must be generated during estimation from the investment data. This yields, as a by product, a consistent decomposition of gross investment into replacement and expansion investment. The model is applied to U.S. Electrical Machinery data.

TOPIC:	**MEASUREMENT ERROR IN SURVEYS**
SPEAKER:	Bob Groves, Census Bureau
CHAIR:	Ron Fecso, NASS
DISCUSSANT:	Clyde Tucker, BLS
DATE & TIME:	Tuesday, November 20, 1990; 12:30 to 2:00 p.m.
LOCATION:	Room 7416, GAO Auditorium, 441 G Street, N.W.
SPONSOR:	Methodology Section
ABSTRACT:	For those of us who were unable to attend the Measurement Error conference in Arizona, this is our opportunity to hear Bob Groves talk about measurement error in surveys.

ANNOUNCEMENTS (continued)

Quantitative Literacy Interest Group Request for Volunteers (continued from p. 1)

At this time the WSS QL Group is requesting your help in accomplishing some of the above tasks. We need volunteers for: A Speakers' Bureau (ASA slides and/or videotapes will be provided); review of the Fairfax County math syllabus for grades K-6; arranging tours at various places where statistics is practiced, particularly those places mentioned above; and QL workshops for teachers. If you can donate as few as three or four hours of your time to assist in any of these activities in Fairfax County, please contact Shail J. Butani at (202) 523-1850 (work) or (703) 922-1892 (home).

This is but one example of the kinds of activities we intend to pursue throughout the Washington area. As the WSS QL activities begin to take place in other areas, we will be reporting on them through this newsletter. Meanwhile, if you are interested in participating in some of these projects in areas other than Fairfax County, please contact Ron Fecso at (202) 475-3486 or Dwight Brock at (301) 496-9795.

Tentative Schedule of SIGSTAT Meetings

SIGSTAT is the Special Interest Group in Statistics in the Capital PC User Group. The tentative schedule of events through next April is as follows:

11/07/90	SAS/IML - powerful matrix programming language: graphics, window creation, dynamic code generation, etc.
12/05/90	Limdep ET - an econometric toolkit with extensive regression capabilities.
1/09/91	StatXact - unique package providing exact p-values and confidence intervals for contingency tables and k-sample tests.
2/13/91	Derive - symbolic math package.
3/13/91	Forecast Master - time series forecasting.
4/10/91	Shazam - a very complete econometric estimation package.
5/15/91	???? wildcard - suggestions to Charlie Hallahan.

All meetings are scheduled for Wednesdays from 12:30 to 1:30 p.m. in Room B-14, 1301 New York Avenue, N.W. The building is located midway between the Metro Center and McPherson Square Metro stops. If this is your first SIGSTAT meeting, call Charlie Hallahan, 786-1507, and leave your name in order to gain entry into the building.

EMPLOYMENT COLUMN

The Washington Statistical Society Newsletter provides a service of notification of employment opportunities and descriptions of those seeking employment here in Washington. Readers are encouraged to take advantage of this feature of the newsletter. Deadline for inserting notices is 5 (five) weeks before the publication date. Those interested should write to: Bill Arends, USDA-NASS, Room 4133 South Building, Washington, D.C. 20250-2000, Phone 447-6812.

JOB OPENINGS

STATISTICIAN GS-12 with the Water Resources Division of the U.S. Geological Survey ($35,825-46,571 per year). The position (Ph.D.) includes original research, joint multidisciplinary research, and advising scientists on design and analysis methods. Expertise in categorical variables and experimental design preferred. Opportunities abound to work on national water-quality issues. AA/EEO employer. Send SF-171, CV, list of college courses to **Priscilla Mawyer, MS-215, USGS, Reston, VA 22092.**

JOB OPENINGS (continued)

The Agriculture Division is currently recruiting for a **Senior Mathematical Statistician** to serve as Assistant Chief for Research and Methodology, GM15/1529 ($59,216 - $76,982). The incumbent manages the staff and work of two branches, each consisting of approximately 14 employees. The incumbent is responsible for development and oversight of all statistical methodology, research, and evaluation for programs of the Agriculture Division. The incumbent additionally oversees the compilation of the mail lists for the census of agriculture and agriculture surveys, the coverage evaluation of the census of agriculture, and the conduct of other research and evaluation studies for programs of the Division. The statistical research and evaluation projects encompass all areas of survey and census methodology. The incumbent is expected to have had graduate training in statistics and to have proven competency as a manager. Knowledge of agricultural statistics is desirable and U.S. citizenship is required. Interested applicants should contact **Dr. Charles P. Pautler, Jr., Chief of the Agriculture Division**, by telephone at 301/763-8555 or by mail to the **Agriculture Division, Bureau of the Census, Washington, D.C. 20233**.

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