



March 1986

1986: The 60th Birthday of WSS

WASHINGTON
STATISTICAL
SOCIETY

NEWSLETTER

CALENDAR

March	6	Thursday	Reporting Standards for Survey Data in Basic Social Science Research
March	11	Tuesday	Survey of Income and Program Participation (SIPP); Labor Force Transitions, Household Asset Ownership, and Wealth Holdings
March	13	Thursday	An Application of Spatial Modeling for the Estimation of Census Nonsampling Variance
March	18	Tuesday	Substitution for Nonrespondents in Sample Surveys

EDITORS NOTE: This is the third in a series of articles on the statistical activities of various Federal agencies. Yvonne Bishop is the Director of the Office of Statistical Standards and Nancy Kirkendall is a Senior Mathematical Statistician at the Energy Information Administration.

The Energy Information Administration--by Yvonne M. Bishop and Nancy Kirkendall

The Energy Information Administration (EIA) is the statistical agency of the U.S. Department of Energy. EIA is a relatively small statistical agency, with about 490 employees. Of these, 21 are mathematical statisticians; 46 are survey statisticians; and 112 are economists, mathematicians, and operations research analysts. In addition, EIA has many fuel-specific industry specialists.

This high proportion of professionals with diverse mathematical skills reflects the responsibilities of the agency which not only conducts some 60 surveys to collect information on the National supply, consumption, and cost of all major forms of energy, but also is responsible for analysis of past and future trends. This analysis relies heavily on the 27 forecasting models that the agency maintains. The models in turn are built on the information provided by the surveys.

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The Energy Information Administration---Continued

Two of the program offices collect information on the production, price, and disposition of the major sources of energy. The Office of Oil and Gas is one; The Office of Coal, Electric, Nuclear and Alternate Fuels is the other; and both conduct analyses relative to their fuels. Surveys operated by these offices tend to be either census surveys of the portion of the industry where there are relatively few easily identified companies, such as petroleum refiners, or multi-attribute stratified sample surveys of the portion of the industry where there are a large number of smaller companies involved, such as sellers of home heating oil. The third program office, Energy Markets and End Use, conducts consumption surveys and also has an integrating function. The consumption surveys are multistage area probability samples which collect information on consumption of energy in residential and nonresidential buildings. EMEU also produces summary statistical publications covering all fuels, and produces DOE's short-term and intermediate-term forecasts of the energy situation in the United States.

The program offices are responsible for all phases of their survey operations and analysis. They prepare and maintain frames, design their surveys and questionnaires, prepare the edit, imputation, and estimation procedures, and perform analysis. They are responsible for maintaining the quality of their data and their publications.

EIA's supporting offices are the National Energy Information Center, responsible for dissemination and answering public inquiries; the Office of Automatic Data Processing Services, the Office of Planning and Resources, and the Office of Statistical Standards (OSS).

The OSS serves as a statistical advisor to the program offices and has a general oversight function. The oversight function includes various forms of review, which lead to the identification of both good practices and problem areas. The exemplary practices are codified in a system of standards. Research in the problem areas leads to the development of technical guidelines.

The intensity and types of review vary and include:

1. Quality Audit program in which individual survey systems and operations are subjected to a detailed scrutiny, from the receipt and logging in of the survey forms to the computer processing and publication of the data. As a result of the audit, recommendations for improvements to the system are made and (usually) agreed to by the program offices. Almost half of the survey systems in EIA have received a quality audit within the last 3 years.
2. Review of prepublication drafts of all EIA products and plans as incorporated in survey clearance packages. The review is multifaceted and includes input of independent experts from outside the agency when OSS staff do not have the necessary expertise.
3. In-depth analysis of a data series or a collection of data series, resulting in a report that describes the strengths and weaknesses. The analysis includes a comparison of the published EIA data with data from other sources, where possible, and/or an identification and evaluation of internal sources of variance such as outliers, inconsistencies, reporting error, processing error, etc.

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The Energy Information Administration---Continued

4. Verification that a public-use tape will reproduce all published forecasts, and that the rationale behind the model is fully documented and available, Research has been done on methods of evaluating models, and a scheme for model audits is currently being developed.

These last two activities are typical of the efforts that EIA makes to ensure that all its work is open to inspection. When the agency was established during times of the oil crisis, there was much debate and disbelief over such matters as the size of the country's oil reserves; consequently, Congress, to ensure credibility, mandated that EIA should publish its findings independently of the rest of the Department. This credibility is further enhanced by the open availability of documentation and validation findings.

When problem areas are uncovered, OSS is responsible for formulating standards and writing guidelines. They cover areas such as documentation requirements for models and systems, conventions for graphs, disclosure avoidance procedures, performance statistics, computer-generated graphics, etc. These standards and guidelines assure maintenance of good practice and compatibility of methodology, documentation, and presentation in EIA products. They are usually based on OSS research which is often also published in the statistical literature.

The agency is fortunate to have the advice of the ASA Committee on Energy Statistics. This committee, composed largely of ASA fellows, has members from academia, government, and the energy industry. The committee meets with EIA twice a year to discuss technical issues in a forum that is open to the public. Many of EIA's perceived needs concern sample design and estimation. The design problems vary from those involved in sampling an industry where 10 percent of the participants account for 80 percent of the activity, to the difficulties of sampling the energy consumption of commercial buildings when no frame for such buildings exists. Estimation includes such matters as construction of meaningful indexes and how to quantify the amount of unmined coal available in a region using only a detailed geologic map. EIA is very grateful to the committee members for the excellent advice they give.

PROGRAM ABSTRACTS

TOPIC: Reporting Standards for Survey Data in Basic Social Science Research
SPEAKER: Stanley Presser, National Science Foundation
DISCUSSANTS: Barbara Bailer, Bureau of the Census and Tad Cantril, Bureau of Social Science Research
DATE AND TIME: Thursday, March 6, 1986; 12:30 - 2:00 p.m.
LOCATION: GAO Auditorium, 441 G Street, N.W. (Call 523-1760 to obtain building entrance)
ABSTRACT: Disclosure practices in articles that draw on survey data are examined in four social science disciplines. The data comes from a content analysis of leading research journals in economics, political science, social psychology, and sociology in the years 1949 to 1980. The results suggest that social scientists are inattentive to methodological detail and indicate the need for a set of reporting standards.

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PROGRAM ABSTRACTS (CONTINUED)

TOPIC: Survey of Income and Program Participation (SIPP); Labor Force Transitions, Household Asset Ownership, and Wealth Holdings
SPEAKERS: Kathleen Short and Enrique Lamas, Bureau of the Census
DATE AND TIME: Tuesday, March 11, 1986; 12:00 - 1:30 p.m.
LOCATION: Martin Luther King Memorial Library, Room 315, 901 G Street, N.W.
ABSTRACT: The usefulness of SIPP for micro-level dynamic analyses of labor force status will be discussed, based on a paper by Kathleen Short and Paul Ryscavage titled "SIPP Labor Force Transitions: Problems and Promises." Estimates of asset ownership and wealth by selected characteristics of households will also be discussed, based on a paper by Enrique Lamas and John McNeil titled "Household Asset Ownership and Wealth Holdings in 1984: Data from the Survey of Income and Program Participation."

TOPIC: An Application of Spatial Modeling for the Estimation of Census Nonsampling Variance
CHAIR: William Winkler, Energy Information Administration
SPEAKER: Paul Biemer, Bureau of the Census
DISCUSSANT: Noel Cressie, Iowa State
DATE AND TIME: Thursday, March 13, 1986; 12:30 - 2:00 p.m.
LOCATION: GAO Auditorium, 441 G Street, N.W. (Call 523-1760 to obtain building entrance)
ABSTRACT: Estimating census nonsampling variance components has traditionally been an expensive and administratively complex activity, involving either the randomization or the remeasurement of Census units. This paper provides, through the use of spatial modeling and estimation techniques, a means of obtaining nonsampling variance estimates directly from Census results without additional field work. The general model, the conditions for the estimability of the model parameters, and the procedures for the estimation of the nonsampling variance components are given. Some empirical results obtained from the 1980 Census are provided as a basis for recommending further study of the methodology.

TOPIC: Substitution for Nonrespondents in Sample Surveys
SPEAKER: David Chapman, Bureau of the Census
CHAIR: Monroe C. Sirken, National Center for Health Statistics (NCHS)
DISCUSSANTS: Frederick Scheuren, Internal Revenue Service, and Barry Ford, U.S. Department of Agriculture
DATE AND TIME: Tuesday, March 18, 1986; 1:30 - 3:30 p.m.
LOCATION: Center Building, Room 1-23, 3700 East-West Highway, Hyattsville, MD.
ABSTRACT: The method that is probably used most often to impute for unit nonresponse in surveys is to adjust (upward) the weights of the respondents to account for the nonrespondents. Another method of accounting for unit nonresponse is substitution: replacing a nonrespondent with a population unit not originally selected for the sample. This presentation will include a description of two basic approaches to generating substitutes and a discussion of the advantages and disadvantages of substitution. Also included will be a discussion of the performance of the substitution procedure used in a random digit dialing feasibility study carried out in 1984 for the National Health Interview Survey, including a comparison of the substitution procedure with weight adjustment procedure.

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PROGRAM ABSTRACTS (CONTINUED)

Bureau of Labor Statistics Seminar

TOPIC: Some Diagnostic Tools in Time Series Analysis
SPEAKER: George C. Tiao, University of Chicago
DATE AND TIME: Friday, February 28, 1986; 10:00 - 11:30 a.m.
LOCATION: GAO Building, Room 2736, 441 G Street, N.W., Washington, D.C.
ABSTRACT: This talk presents some recent results in time series diagnostics. Simple and easy to use tools have been developed to detect outliers and level shifts in time series. A model-based formulation of the diagnostic problem is given, and Bayesian and non-Bayesian properties of the procedures are discussed.

ANNOUNCEMENTS

January Board Meeting

At the January 29th meeting of the WSS Board of Directors, Susan Ellenberg reported that she now has 11 volunteers to assist with judging high school science fairs. We hope to be able to provide judges for 6 science fairs this year. The Board approved a budget of up to \$250 for prizes. One possible prize would be the book Statistics--A Guide to the Unknown. WSS coffee mugs might be considered as additional prizes for other projects worthy of recognition. A draft proposal of operating procedures for the Methodology Section was presented. Some suggestions for changes were made; a revised proposal will be presented at the February Board meeting.

WSS Mugs WSS Mugs WSS Mugs WSS Mugs WSS Mugs WSS Mugs

Many members may not realize that WSS coffee mugs are available. These very attractive blue mugs, which bear the Washington Statistical Society name and logo, make interesting guest cups for the office and might be conversation starters at office or home meetings. Mugs are available for \$5.00 each through Charles Mann and Associates (telephone: 202-466-6161).

Washington Statistical Society Annual Dinner

Please mark your calendar and reserve the evening of May 29th for the WSS annual dinner. This year's dinner, which will commemorate the 60th anniversary of the Society, will be held at Hogate's. More detailed information will be provided in upcoming newsletters.

EMPLOYMENT COLUMN

Deadline for inserting notices is five (5) weeks before the publication date.

Send notices and requests to:
Evelyn R. Kay
520 22nd Street, N.W.
Washington, D.C. 20037 202/331-1153

JOB OPENINGS

Tenure-track Assistant Professor: For anticipated position (fall 1986). Biostatistics Division, Department of Preventive Medicine and Biometrics, F. Edward Herbert School of Medicine. Salary range \$26,400 - \$35,000. Ph.D. in statistics or biostatistics required. Responsibilities include teaching medical and graduate students, research, and consulting. C.V. to James J. Schlesselman, Ph.D., Chair, Search Committee, Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Maryland 20814-4799.

Statistician (Health) GS-1530-11/12: Masters degree with major or minor in biostatistics, epidemiology, health care administration, public health, or related fields. Extensive experience in the collection, processing, and analysis of health and health care data, including the preparation of reports and articles for publication. Working knowledge of one or more elementary computer languages (BASIC, NATURAL, EASYTRIEVE, etc.). Send SF-171 to Ms. Anita Lewis, Health Data Analysis Division, Department of Health Statistics, Naval Medical Data Services Center, Bethesda, MD 20814-5066.



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