

May 1986

1986: The 60th Birthday of WSS

WASHINGTON
STATISTICAL
SOCIETY

NEWSLETTER

CALENDAR

May 14	Wednesday	Parameters of Super Population and Survey Population
May 15	Thursday	Design of the 1987 National Medical Expenditures Survey
May 21	Wednesday	Short Course: The Graphic Analysis and Display of Statistical Data
May 21	Wednesday	Measuring Agreement in the Top Ranks From A Set Of n Rankings
May 22	Thursday	Survival Analysis in Radiation Experiment
May 27	Tuesday	WSS "Open Board" Meeting
May 29	Thursday	WSS Annual Dinner

EDITOR'S NOTE: The following is a condensed version of a talk given by Margo Conk to the Washington Statistical Society in February, 1986. Because WSS was formed at the beginning of this era and many of the individuals mentioned in her talk played key roles in WSS, we are printing her talk here.

A Historian's View of the U.S. Statistical Systems Turbulent Era: The 20's - 40's.
By Margo Conk, Mather Visting Professor, Case Western Reserve University.

Good afternoon. It is a great honor to speak today to the Washington Statistical Society. This organization has played a major part in the exciting and sometimes controversial process of the statistical innovation in Washington. As you will see, you will be hearing about your own collective past as well as about the history of census-taking in this country.

I was asked today to talk a bit about my historical research in the growth and development of census-taking in the United States, and I have chosen to carve out a piece of a much longer story. I will focus on controversies surrounding the 1930 census and the collection of unemployment statistics in the 1920s, 1930s and early 1940s. My reasons are several. First, many of you know vaguely that sampling methods, the current population survey and more generally probability applications were introduced in the census bureau in the late 1930s and early 1940s. You are also aware of the more recent controversies surrounding the census--particularly those involving the differential undercount of hard-to-count populations. This latter issue is still very much with us--and still intractable and controversial.

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WASHINGTON STATISTICAL SOCIETY PROGRAM CHAIRS

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Sampling methods and the unemployment series were in the past similarly controversial and seemingly endless problems. Thus, I would like to tell a story of what Stuart Rice called, "Statistical Opportunities and Responsibilities" from a generation or more ago, to see if we can get a longer term perspective on statistical innovation and statistical politics and their relationship with the broader concerns of American history.

* * *

During the 1920s, the Census Bureau had seen modest prosperity in Herbert Hoover's Commerce Department. There had been major innovations in business statistics, including a new Census of Distribution. The 1929 census law ceded authority over many details of census taking--particularly determining the questions--to the Commerce Department and Census Director. The 1930 census had been in the planning stages for a number of years, and the bureau expected a smoothly functioning count.

Between the time that the schedules and the census tabulation procedures were planned and the census was actually taken, however, the stock market crash and the start of the Great Depression radically changed the economic situation of the country. By the late winter and early spring of 1930 rising unemployment began to put strains on local relief resources. Unemployment protests broke out in major cities. Nevertheless, the Hoover administration asserted that the unemployment situation was not deteriorating. "All the evidences indicate," Hoover stated in early March, "that the worst effects of the crash upon employment will have been passed during the next sixty days. (sic)" He cautioned the country that statements about the severity of unemployment were not based upon solid data. He quoted a memorandum from his Secretaries of Commerce and Labor: "There are no detailed statistics as to the unemployed, and they can only be approximated." "The forthcoming census," their statement added, "will show the first real determination of unemployment."

Unfortunately, despite Hoover's March 1930 statement, the decennial census was not planned to address such concerns. The census measured long term trends measured in decades, not short-term shifts in business conditions. It was a decennial enterprise which collected a wide variety of data. Years passed before all the data were cross-tabulated and reported. The only numbers which the bureau reported rapidly were the raw population counts for apportionment. Other data had to be coded on punch cards, verified, tabulated, analyzed for mistakes, corrected if necessary, and prepared for publication. Following past practices, the bureau had a pre-planned schedule of tabulation. The unemployment data were relatively low priority and not scheduled for early release.

The conventional wisdom at the time was that unemployment could not be accurately measured. It changed too quickly. It was too hard to define a consistent measure of what an unemployed person was. It was too expensive to measure. And, most importantly from Hoover's perspective, unemployment fell into the realm of business statistics. It was a measure of wasteful and inefficient management, not of the human misery faced by the unemployed worker.

Hoover's inattention to the question of unemployment statistics was a function of his and his supporters notions of who should manage the economy and how it should be managed. Repeatedly he and his advisors defined unemployment as "a production problem;" attention should be focussed on wasteful and inefficient management practices. As he described his thinking to Commerce official E.E. Hunt some years before, Hoover wanted

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"to 'get over' the conception of the employers' obligation." Unemployment insurance, on the European model, was "neither desirable nor practicable in America." Hunt suggested that perhaps it might be necessary to "explain to workmen the necessity for reduction in hours and wages." Yet they agreed that they had "to bring home to the public mind the significance of the business cycle and enlist the individual enterprise of business managers . . . in this work of regularizing employment within their own establishments." There was to be no "palliation or tonic from the public treasury." From such a perspective, it was necessary to know which employers were not utilizing their workers efficiently, where there was too much seasonal or part time work. It was not important to know much about the situation of the individual worker and his family, the level of hardship he faced, or the effects of unemployment on his lifestyle.

* * *

Director William Mott Stuart initially refused to report the unemployment data promptly since bureau officials had placed these data late in the tabulation schedule. Public pressure was intense though, so they were reported initially in June 1930. The counts of 2.3 to 2.5 million unemployed were immediately attacked as being too low.

As the data came under increasing public scrutiny, it became clear that the officials did not have a clear conception of how to count the unemployed when they planned the census. They thus intended to cast as wide a net as possible--ultimately providing seven different measures of the number of unemployed. When Stuart agreed to publish preliminary hand counts directly from the unemployment schedules, he chose the most conservative count possible, and thus left himself vulnerable to attack. The Administration data did not initially include the number of workers who were on layoff, nor did it include new workers who were looking for jobs but had not found them. When those classes of the unemployed were added to the administration figures, the size of the unemployed population grew dramatically. As the controversy raged during the summer of 1930, the bureau statistician working on the data, Charles Persons, resigned and went to the press to protest the Hoover administration figures.

Thus by late 1930 census unemployment statistics had been politicized. The controversies continued for the next several years. Professional statisticians picked sides on the issues. The ASA-AEA Census Advisory Committee advised against a second unemployment census for 1931; the ASA Committee on Government Labor Statistics supported the special census. As unemployment rose to 10 million people and the depression deepened, the statisticians continued to argue and debate how to measure unemployment.

When the Roosevelt administration took over, the previously Republican Census Bureau found its budget cut, and its senior officials changed. Democrat William Lane Austin became Director; ASA President Stuart Rice became Assistant Director. Both had a mandate to shake up the bureau and to figure out ways to measure unemployment and to develop other depression related-indicators.

They began to do so in mid-1933. New Dealers created a Committee on Government Statistics and Information Services and a Central Statistical Board. They began to investigate the internal workings of the Census Bureau and were horrified at the "backwardness and unpreparedness" of the agency. The staff was old; few had been trained in statistics. Some divisions did not have any written rules for collecting or editing data. Budget procedures were inadequate. "Like the incompetent children of great men," Rice charged in a confidential memo to Austin, "we are living off our past."

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By mid-1935 the new statisticians in the bureau had decided that they had to completely shake up the bureau structure and procedures. They were learning from pilot studies--many done with funds from the relief agencies--that unemployment could be measured in a carefully selected sample study. They also decided that they had to force the older generation to learn about the innovations in probability and sampling methods then being developed in other agencies and in other countries. The young turks in the bureau of the mid-1930s--men such as Calvert Dedrick, Fred Stephan, and Morris Hansen--thus slowly began to try to convince the White House and their colleagues that sampling methods would work. They actually pushed this position before they had developed the statistical theory which would ultimately justify their efforts, but they knew that they had to try out their techniques in an actual survey before they could prove they were right. After several years of unsuccessful lobbying efforts, Congress mandated an unemployment census in late 1937. This effort was to be a voluntary registration--one of the worst ways to collect data on a controversial subject. But the statisticians convinced John Biggers, the temporary administrator, to add a sample household enumeration to the effort to evaluate the accuracy of the registration. Biggers agreed, and postal carriers enumerated 2 percent of households in "nonbusiness postal routes" with a separate form.

When the results were in, they justified the statisticians methods and concerns about the self-registration. 7.8 million unemployed workers registered, but this was only 71.4 percent of the unemployed according to the sample survey. The true number of unemployed was 11 million. Biggers and the statisticians in fact reported the sample results first in early January 1938; the press treated these results as the official ones. Even Roosevelt admitted afterward in a press conference that his scepticism about the possibility of an efficient, inexpensive survey of employment and unemployment was unjustified. The results were promising for plans for the 1940 census.

In 1940, the statisticians pointed to the 1937 effort to justify their hopes for adding a sample to the decennial census. The young New Deal statisticians thus lobbied their older colleagues to accept a sample census along with the complete count. Many new questions were scheduled; the younger men pointed out that the questions crowded off the main schedule could be asked on a sample basis. More data could be collected without greatly increased additional costs, and the sample results could be tabulated quickly for summary public presentations. Director William Lane Austin and other old-timers were dubious about such claims, but they were willing to be convinced by the Dedricks, and Hansens, and Stephans of the younger generation.

Thus, the 1940 census took a major step in statistical method by including "supplementary questions," as they were euphemistically called, for two people on each side of the 40 line population schedule. The questions on parents' birthplace, mother tongue, veterans' status, usual occupation, social security status, and fertility were asked on the sample schedule. The bureau hired a number of new statisticians to administer the sample census and the other new features of the 1940 count. Among the most prominent were Phillip Hauser, the Assistant Chief Statistician for Population, W. Edwards Deming, sampling expert in the Population Division, and William Hurwitz in the Statistical Research Division. These men supported the work begun by Stuart Rice, Calvert Dedrick and Morris Hansen in the mid-1930s. These efforts proved successful, and sampling was integrated in the decennial census process.

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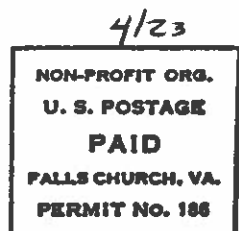
There is still one final footnote, though, to this story of New Deal census-taking which permitted the bureau to consolidate their achievements and to plan even more ambitious statistical efforts during the war years and beyond. In 1939, as the bureau geared up for the 1940 census, the Works Progress Administration initiated a new Sample Survey of Unemployment designed to provide current estimates of the rate of unemployment in the nation. The survey was national, was taken monthly, and used WPA workers as the field force. Twenty thousand households were surveyed using a complex system to select counties to sample, and then to select households within the counties. The sample was changed every six months to keep the data current. Such an effort was expensive; whether it would work was not clear at the time. Designed as it was to overlap with the decennial census, however, the survey provided the statisticians with a unique opportunity to check their results.

High-quality planning characterized the survey. It was conceived by Howard Myers, Director of the WPA Division of Research, and John Webb, Chief of the Social Research Section. They hired mathematical statisticians, J. Stevens Stock and Lester Frankel, to design the survey. As the survey developed, the statisticians learned much from the work, and by the end of 1940 had confirmation of their hopes that such a current reporting system was both feasible and accurate. The survey continued to operate as the World War II began, but ironically, as prosperity returned, its continued existence was threatened by the abolition of the WPA. In 1942, therefore, a government statistical commission convinced the Budget Bureau to maintain the survey and transfer it to an existing government agency. Several agencies were interested in taking it over--especially the Bureau of Labor Statistics and the Census Bureau. The Census Bureau won. The survey was transferred to the Bureau in August 1942 and renamed the Monthly Report on the Labor Force. In 1947, the Monthly Report on the Labor Force was broadened again in scope and technique and called the Current Population Survey. With the integration of this survey into the official statistical system, the New Deal statisticians had solved the problem of measuring unemployment which had discredited Hoover's census bureau.

By the early 1940s then, the Census Bureau had achieved most of the goals set forth in the early days of the Roosevelt administration for the nation's population statistics. The personnel had been changed; the Statistical Research Division of the bureau stood at the cutting edge of probability sampling and survey research. Broad new initiatives had been made in the decennial census. A protean system of current surveys had been started and the bureau had a current surveys division for population research. It would be the task of this generation of statisticians to direct the bureau for the next quarter century or more and bring the American census into the age of computers and the information revolution.



P.O. Box 23502
Washington, D.C. 20026



PROGRAM ABSTRACTS

TOPIC: Parameters of Superpopulation and Survey Population
SPEAKER: V.P. Godambe, University of Waterloo
DISCUSSANT: Richard Valliant, Bureau of Labor Statistics
DATE AND TIME: Wednesday, May 14, 1986; 12:30 - 2:00 p.m.
LOCATION: GAO, Room 2736, 441 G St., N.W. (Call 523-1760 to arrange for building entry.)
ABSTRACT: Utilizing the theory of estimating functions (Godambe, 1960; Godambe and Thompson, 1978, 1984) this paper relates superpopulation parameters with those of a survey population under study. Further it establishes optimal estimation, simultaneously, of both types of parameters.

TOPIC: Design of the 1987 National Medical Expenditures Survey (NMES)
SPEAKERS: Daniel Walden, National Center for Health Services Research (NCHSR), and Steven Cohen, NCHSR
CHAIR: Bette Mahoney, Department of Defense
DISCUSSANT: Michelle Adler, Department of Health & Human Services (HHS)
DATE AND TIME: Thursday, May 15, 1986; 12:30 - 2:00 p.m.
LOCATION: Rm. 303-305A, Hubert H. Humphrey Building, 200 Independence Avenue, S.W.
ABSTRACT: The 1987 NMES, jointly sponsored by the Public Health Service and the Health Care Financing Administration, HHS, is a survey of persons in the civilian noninstitutional population: the population in nursing homes, psychiatric hospitals and facilities for the mentally retarded, and medical care providers and health insurers of respondents. The survey is intended to provide current national estimates of the use of and expenditures for health care services, sources of payment, and health insurance coverage.

TOPIC: Measuring Agreement in The Top Ranks from a Set of n Rankings
SPEAKER: Ronald Iman, Sandia National Laboratories
CHAIR: Lee-Ann Hayek, Smithsonian Institution
DATE AND TIME: Wednesday, May 21, 1986; 12:30 - 2:00 p.m.
LOCATION: Room 2736, GAO Building, 441 G Street, N.W. (Call 523-1760 to arrange building entrance.)
ABSTRACT: Many situations exist in which n objects are ranked by two independent sources. In these situations, interest centers primarily on agreement in the top rankings, with disagreements on items at the bottom of the rankings being of little or no importance. A problem with Spearman's rho in these settings is that it is equally influenced by disagreement on the assignment of rankings at all levels. In this presentation, a measure of top-down correlation is provided that is more sensitive to agreement among the top rankings. The statistic used in the setting is the ordinary correlation coefficient computed on Savage (1956) scores. Examples of the application of the statistic are shown, as is the asymptotic normality of the statistics.

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PROGRAM ABSTRACTS (Continued)

TOPIC: Survival Analysis Radiation Experiment
SPEAKER: Grace Yang, University of Maryland
CHAIR: Robert Casady, National Center for Health Statistics (NCHS)
DISCUSSANT: Ron Brookmeyer, Johns Hopkins University
DATE AND TIME: Thursday, May 22, 1986, 1:30 - 3:30 p.m.
LOCATION: Landow Building, Conference Room A, 7900 Woodmont Avenue, Bethesda, MD
ABSTRACT: Cell survival and mutation probabilities are used to study the dose-response relationships of ionizing radiation in single cells. The experimental log survival curve obtained for low LET, such as X-rays and UV, exhibits a "shoulder" in low dose region. As dose increases, the survival curve changes from log concave to log convex and has an exponential tail. The mutation probability in general has unimodal shape as a function of dose. Interpretation of these findings identifying the causes of these phenomena are of physical significance. Neyman-Puri model is modified to make it compatible with the experiment. From this modified model, the survival and mutation probabilities are derived; properties of the shoulder and the maximum are established, and a good fit to the data is produced.

ANNOUNCEMENTS

Open Board Meeting

The WSS Constitution specifies that at least one meeting of the Board of Directors shall be announced to the membership as an "open meeting" to provide a forum for comments and suggestions from members-at-large. This year's meeting will be held Tuesday, May 27, 12:30 p.m. in Room 3000 at 400 Maryland Avenue, S.W. The meeting should conclude by 2:00 p.m. Persons attending without a Government identification card will need to enter the West-most door on the South side (C Street) and sign in at the desk.

While the Board invites discussion on any WSS related topic, opinions are specifically sought on possible short course presentations and suggestions to pursue in carrying out our role as hosts of the "ASA 150" Anniversary annual meetings in 1989. For more information contact Rich Allen, 447-3896.

March Board Meeting

The Board received a very glowing report on the school science fairs at its March 25th Board meeting. Four of the six fairs have now been judged. WSS participation was well appreciated at each fair and the judges had a very enjoyable experience. More volunteer judges are needed for next year, however. Since there is not a separate statistics category, each project in the entire fair had to be evaluated.

Considerable time was spent discussing the upcoming Board Secretary and Newsletter vacancies. One key point from the discussion is that each of these two people will need to have good secretarial help to carry out their WSS role.

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ANNOUNCEMENTS (Continued)

Newsletter Mailing Procedures by Rich Allen

There are a number of questions each year concerning WSS Newsletter mailing schedules, delivery problems, etc. It might be helpful to outline the procedures that are used in preparing, printing, and mailing Newsletters.

The goal that WSS is striving for is to have Newsletters to all members by the first of the appropriate month, if possible. In order to meet that goal, deadlines for submitting material have been adjusted and are closely followed. Material essentially must be ready by the first of the month to be in the Newsletter which members will receive about the first of the next month.

Newsletters for all regular members (those who join WSS in conjunction with their ASA membership) are sent by third class bulk mail. The letter service that we use handles the printing and addressing, and delivery to a post office in Falls Church, Virginia. The mail labels are printed by ASA each month so we use the most up-to-date address that ASA has. (If you are a regular WSS member, you don't need to inform WSS of changes of address; the notice to ASA takes care of both.)

As a means to track delivery I try to record each month the arrival date of my own copy in Virginia plus the arrival date of a copy received in my office. (The office copy is assumed to be held up one day by within building delivery delays.) For the 1985-86 program year to date the record has been:

<u>Month</u>	<u>Receipt in Virginia</u>	<u>Receipt in D.C.</u>
September	Sat., August 24	Tues., September 3
*November	Tues., October 22	Wed., October 23
December	Fri., November 29	Mon., December 2
January	Sat., December 21	Thurs., January 2
February	Fri., January 31	Mon., February 3
March	Thurs., February 27	Mon., March 3
April	Sat., March 22	Thurs., March 27

*The October records are missing.

Thus, the track record for this year indicates that Newsletters are in the mail and in the hands of at least a portion of our membership by our target dates. We do receive reports from time to time of members receiving their copies up to as much as 2 weeks later than these dates. These appear to be situations where a local post office has placed a lower priority on delivery of bulk mail items. We have checked the procedures recently with the post office which we use and the regional postal center in Merrifield, Virginia, to verify that mail is being handled promptly out of those offices and on to other post offices.

Newsletters for Local Associate members are mailed separately from a list maintained in my office. We do maintain that small mailing list in my office since it would not be cost effective to sort those 50 or so labels into the 1500 plus regular members mailing.

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Newsletter Mailing Procedures (Continued)

Each year a few telephone calls come to the Newsletter Editor or the Secretary concerning nonreceipt of Newsletters. Some of these calls come during the summer when there has not been a Newsletter. WSS usually issues Newsletters from September to June. Many of the other calls turn out to be situations in which a person renewed ASA membership but missed the chapter membership portion of the renewal notice. ASA has the membership files automated and can check their records interactively to determine the chapter membership status. A member should call ASA directly (393-3253) to determine if they may have missed renewing WSS membership. (Occasionally, the WSS membership indication gets dropped by ASA during their renewal update process, but that is very rare.)

ASA-EPA Conference on Current Assessment of Combined Toxicant Effects

There will be an ASA-EPA conference on Current Assessment of Combined Toxicant Effects on May 5th and 6th from 8:00 to 4:40 p.m. at the Capitol Holiday Inn, 550 C Street, S.W. There is an \$85 fee for the conference for non-EPA attendees. This fee covers all handouts, two lunches, a reception and refreshments. For registration information, contact Ede Denenberg at 393-3253.

Washington Operations Research/Management Science Council (WORMSC) Banquet

The WORMSC Annual Banquet will be held at the Pier 7 Restaurant, 650 Water Street, Washington, D.C. on Wednesday, May 14. There will be a cash bar from 6:30-7:30 p.m., followed by a full-course dinner from 7:30-8:30p.m., followed by a 30-minute lecture entitled "An Intelligent Spouse's Guide to Operations Research" by Dr. Walter L. Smith of the University of North Carolina at Chapel Hill. The dinner costs \$20 and consists of: French Onion Soup, Veal Cordon Bleu, Baked Tomato Parmesan, Rice Pilaf with Almonds, Chiffonade Salad, Black Forest Cake, and Coffee. Wine will be served free, compliments of WORMSC. Reservations are requested by May 1. The absolute deadline is Wednesday, May 8th, with payment. Stuffed Flounder may be substituted for the Veal Cordon Bleu with advance notification. Contact Rick Bolstein at 425-3931.

DON'T FORGET TO VOTE IN THE WSS ELECTION

The election of new officers for the 1986-1987 program year is being conducted by ballot in a seperate special mailing this month. The candiates for office are:

For Vice-President and President-Elect:

Nancy Kirkendall, Energy Information
Administration (EIA)
Charles R. Mann, Charles R. Mann, Assoc.

For Methodology Program Chair:

Melaine Martindale, Denfense
Manpower Data Center
William Winkler, EIA

For Representative-at-Large: (two to be elected)

John Czajka, Mathematica
Catherine Dippo, Bureau of Labor Statistics
Basil Korin, American University
David McMillian, Bureau of the Census

For Treasurer:

Bennie Clemmer, Social Security
Administration

Ballots must be mailed by May 21, 1986.

EMPLOYMENT COLUMN

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

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

Statistician (GS-11 or 12 with promotion potential to 13). Position at the Environmental Protection Agency (EPA) in the Office of Water Regulations and Standards for an individual interested in the application of statistics to multidisciplinary projects directed at protecting and enhancing the Nation's waters. Projects include development of industrial water pollution control regulations, development of water quality criteria, and monitoring ambient water quality. Responsibilities also include supporting EPA in matters arising in law suits. Applicants with computer skills and experience and/or training in engineering, science, economics and litigation support are preferred. Send SF-171 or resume to Dr. Henry D. Kahn, Environmental Protection Agency, Office of Water Regulations and Standards (WH-586), 401 M Street, S.W., Washington, D.C. 20460.

Mathematical and Survey Statisticians, Operations Research Analysts, and Economists, Part-time and Full-time, (GS-5 through 12): The Energy Information Administration (EIA) anticipates future positions for both full-time and part-time mathematical statisticians, survey statisticians, operations research analysts, and economists for the GS-5 through GS-12 level. EIA is particularly interested in GS-7/9/11 survey statisticians with both statistical and computer programming backgrounds. Send resumes or completed SF-171's to John Weiner, Director, Resources Management, Energy Information Administration (EI-33), MS 2H-087, 1000 Independence Avenue, S.W., Washington, D.C., 20585; Telephone (202) 252-6537. Also for those interested in part-time positions, please indicate which hours you would be available to work--minimum 20 hours a week.