

INTERNATIONAL STATISTICAL INSTITUTE

INTERNATIONAL ASSOCIATION OF SURVEY STATISTICIANS

THE SURVEY STATISTICIAN

N° 15 — June 1986

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1 Editorial

The previous issue of the Survey Statistician published after the Amsterdam session was so substantial that we had some fears for the content of the present one ; nevertheless, it seems to me that it provides information of quality which will not fail to arouse your interest. Rather than reviewing each item it contains, I have chosen to comment on some of them.

First of all, the Symposium of Panel Surveys, co-sponsored by the American Statistical Association and our Association is obviously of particular interest for survey statisticians, and we can but urge all to attend this meeting, even though the trip may be a draw-back for many. Some may perhaps be able to combine the dates of a previously planned visit to the States with this Symposium. In all events, the IASS will make sure to report on it, either in the Survey Statistician or else through some other channel.

V. Verma's appeal in last issue, for Survey Consultation by Correspondence met with a fair amount of response, yet we are publishing it again in order to prompt further reaction and largely mobilize the international statistical community on this matter.

Finally, let me mention the Question/Answer item ; I have previously commented on the dynamics it has developed, which seem to be confirmed. I am personally very interested by all that is written in it, yet I do feel that everyone should seize the opportunity it offers to express their views : definition problems are of major importance if we are to speak the same language, but our art, survey statistics, consists also and above all in collecting field data, and that, I think, is no minor difficulty.

Gildas Roy
Editor of the Survey
Statistician

2 Life of the Association

2.1. IASS COMMITTEES

Nomination Committee

Chair : Mr. Lars Lyberg (Sweden)
Members : Mrs. Clyde Elisa de Trabuchi (Argentina)
Mr. Alain Lery (France)
Mr. Akin Fadahumi (Nigeria)
Mr. Thomas B. Jabine (U.S.A.)
Mr. Gotthard Forbrigg (G.D.R.)

The Chairman of the Nomination Committee would like to have a committee member from an asian country. Candidates can write to Chairman L. Lyberg.

Program Committee 1987

Chair : Mr. Graham Kalton (U.K.)
Members : Mr. Wilton Bunab (Brazil)
Mrs. Beverley Carlson (U.S.A.)
Mr. Chikio Hayashi (Japan)
Mr. Bert Kersten (Netherlands)
Mr. Jan Kordos (Poland)
Mr. Colm O'Muircheartaigh (Ireland)
Mr. Gildas Roy (France)
Mr. Denis Trewin (Australie)

We only give the composition of this committee as a reminder, the program of the Tokyo session in 1987 having been completed.

Program Committee 1989

Chair : Mr. Luigi Biggeri (Italy)
Members : Mr. W.A. Fuller (U.S.A.)
Mr. W.J. Keller (Netherlands)
Mr. H. Kudo (Japan)
Mr. Y. Lemel (France)
Mr. A. Marton (Hungary)
Mr. F. Mehran (Switzerland)
Mr. G. Nathan (Israël)
Mr. D. Holt (U.K.) ex officio

IASS members are invited to express their views on the program for 1987 and chiefly to suggest one or more topics to insert in the program of 1989 Paris session. They may write to the Chairman or to one of the members of the Program Committee.

The proposal should specify :

1. the methodological and/or empirical importance of the suggested topic ;
2. the aspects to be examined closely during the meeting ;

3. the people who are working on that topic and who, therefore, might organize the meeting or present an invited paper.

Publication Committee

Chair : Mr. R. Platek (Canada)
Members : Mr. E. De Alba (Mexico)
Mr. W. Goldfield (U.S.A.)
Mr. T.V. Hanurav (India)
Mr. L. Lyberg (Sweden)
Mr. G. Roy (France)

Workshop Committee

Chair : Mr. G. Théodore (France)
Vice-Chair : Mr. K.T. de Graft Johnson (Ghana)
Members : Mr. V. Verma (Netherlands)
Mr. J. Kordos (Poland)
Mrs. L. de Cervetto (Argentina)
Mr. G.E. Dickinson (New Zealand)
Mr. O.O. Ajáyi (Nigeria)
Mr. L. Biggeri (Italie)
Mr. D. Singh (Inde)

The Chairman of the Workshop Committee wishes to have a member of the Committee from Japan. Those who want to apply may write to him.

Terminology Committee

Chair : Mrs. Barbara Bailar (U.S.A.)
Members : Mr. Colm O'Muircheartaigh (Ireland)
Mr. F. Azorin (Spain)
Mr. G.K.G. Forbrigg (G.D.R.)
Mrs. Judith Lessler (U.S.A.)
Mr. Leslie Kish (U.S.A.)
Mr. G. Roy (France)
Mr. I. Roshwalb (U.S.A.)
Mr. J.L. Sanchez-Crespo (Spain)

2.2. 1985 COUNTS OF THE ASSOCIATION

TABLE I - RECEIPTS AND EXPENSES FROM JAN. 1, 85 TO DEC. 31, 85

<u>Receipts</u>		<u>Expenses</u>	
Members dues	109, 200.92	Secretariat staff directly paid by IASS	20, 427.57
Donation from Statistics Norway	5, 000.00	Secretariat expenses of the President	19, 328.42
Balance of Rabat Seminary (Credit)	1, 800.00	Other Secretariat expenses	4, 326.97
Subscription to ISI Review (from Nigeria)	1, 416.00	Travelling and meetings	38, 458.65
Financial receipts (SICAV)	4, 049.08	ISI Newsletter	18, 887.07
Tax refunding	1, 064.00	Suscription to ISI Review (from Nigeria)	1, 416.00
Refunding of the short term loan to ISI French Members Group	<u>10, 000.00</u>	Financial investissements (SICAV)	18, 420.00
		Short term loan (to ISI French Members Group)	10, 000.00
<u>TOTAL</u>	<u>132, 530.00</u>	Bank agios	<u>32.73</u>
		<u>Sub. TOTAL</u>	<u>131, 297.71</u>
		Balance (excess of receipts over expenses)	1, 232.29
		<u>TOTAL</u>	<u>131, 530.00</u>

TABLE II - BALANCE ON DEC. 31, 1985

<u>Assets</u>		<u>Liabilities</u>	
* Liquid assets	55, 691.16	Gross capital (net on Jan. 1, 85)	49, 491.27
* Shares values	48, 688.64	Result of the year 1985	1, 232.29
* Checks to be cashed	1, 239.53	Net variation from Jan, 1 to Dec. 31, 85	19, 628.51
		* Net capital	70, 352.07
		* Reserve funds :	
		- ISI Newsletter	10, 000.00
		- Depreciation of the F.F.	3, 000.00
		- Other reserves	20, 000.00
<u>TOTAL</u>	<u>105, 619.33</u>	* Creditors	<u>2, 087.26</u>
		<u>TOTAL</u>	<u>105, 619.33</u>

2.3. CO-SPONSORING OF THE INTERNATIONAL SYMPOSIUM ON PANELS SURVEYS

The American Statistical Association Section on Survey Research Methods with the cooperation of the International Association of Survey Statisticians has organized a Symposium on Panel Surveys, to be held at the Shoreham Hotel, Washington, D.C., November 20-22, 1986. The Organizing Committee comprises Daniel Kasprzyk, U.S. Bureau of the Census ; Greg Duncan, Survey Research Center, University of Michigan ; and M.P. Singh, Statistics Canada. The program of invited papers will cover the following topics :

Issues in the Design of Panel Surveys-Providing a general review of issues related to panel surveys, including operational, design and estimation complexities, and sources of errors ; a comparison between these issues with their cross-sectionnal counterpart ; examples of panel surveys and how they appear to meet their objectives.

Operationnal and Collection Issues-Covering the interview's role and interviewer-respondent effects in panel surveys ; review of the procedures adopted by several large-scale panel surveys to trace individuals to new residences, the costs and some measures of success, as well as guidelines for future panel surveys.

Statistical Design and Estimation-Providing a discussion of coverage issues for panel surveys, e.g., current knowledge of coverage rates, current practices to improve coverage ; the difficulties arising in weighting a population that changes over time ; estimation of descriptive population parameters in light of a changing population base over time ; and the estimation of parameters for analytic units rather than the individual, including the development of unbiased weights as well as adjustments to independent estimates.

Data Base Management Issues for Panel Surveys-Covering approaches to panel data management problems and focusing on the benefits and costs of the key decisions in going from the general data management problems to feasible data structures that can adress the most important analytic concerns. Examples from the Panel Study of Income Dynamics and the Survey of Income and Program Participation will be featured.

Estimation of Cross-Sectionnal and Change Parameters in Panel Surveys-Covering optimal estimation of level and change at time t using revised estimates of level for earlier periods, available at time t ; the use of regression models for cross-sectionnal and longitudinal data to obtain estimates of analytical parameters ; the problems involved in the measurement and analysis of gross change as opposed to net change.

Nonsampling Error Issues in Panel Surveys-Reviewing selected nonsampling error problems, showing how their measurement becomes extremely complicated in panel surveys, including a discussion of errors of nonresponse and response, drawing on examples from panel surveys illustrating the complexities in a panel design.

Panel Conditioning as a Source of Nonsampling Error-Presenting nonexperimental evidence of this effect in several panel surveys : (1) U.S. Consumer Expenditure Survey, (2) National Medical Care Expenditure Survey, (3) National Medical Care Utilization and Expenditure Survey, and (4) British Social Attitudes Survey.

Treating Nonresponse in Panel Surveys-Addressing the treatment of missing interviews through developing models to explain the nonignorable nonresponse cases and a general review of the issue of whether to treat missing interview cases trough weighting adjustments or imputation methods ; also a comparison of methods for handling item nonresponse in panel surveys.

International Symposium on Panel Surveys

ABSTRACT PREPARATION INSTRUCTIONS

1. Use a black (preferably carbon) ribbon and clean typewriter keys.
2. The abstract will be reproduced as submitted by the author(s) in a booklet distributed at the Symposium.
3. Type the title of the paper in all caps at the top of the abstract form, centered on one line. Type all authors' names (no affiliations) with initial caps, centered immediately below. Centered on the third line, type the contact author's name and address. Skip one line space and begin typing the text.
4. **USE THE FULL WIDTH OF THE ABSTRACT BOX!** Any material outside the box will be deleted.
5. The abstract should state concisely the methods and results of the paper. If you wish to revise your abstract after the initial submission, it must be mailed no later than the **Sept. 1, 1986**, deadline.

The \$125 preregistration fee for the Symposium must accompany the abstract of a paper. This fee is nonrefundable. A receipt and acknowledgment will be sent.

Date _____

Enclosed is the required \$125 preregistration fee.

Contact Author for Correspondence:

Name _____

Work Affiliation _____

Mailing Address _____

Daytime Phone (_____) _____

Mail this original and 3 copies to ABSTRACTS, International Symposium on Panel Surveys, ASA, 806 15th St., N.W., Suite 640, Washington, DC 20005.
(Please send a self-addressed envelope for receipt of acknowledgment.)

Modeling Considerations in the Conduct and Analysis of Panel Surveys-Covering research that connects modelbased consideration to the actual design of panel surveys, e.g., the limitations of panel vis-à-vis repeated cross-sectional or experimental designs ; the current status of linear panel models used for the analysis of panel data ; the issue of whether to weight observations for differential selection probabilities and differential nonresponse ; the issue of the use of sample and nonsample individuals in the analysis of household panel data, such as the Panel Study of Income Dynamics.

Featured participants include B. Bailar (U.S. Census Bureau), R. Folsom (Research Triangle Institute), M. David (University of Wisconsin), J.N.K. Rao (Carleton University), D. Horvitz (Research Triangle Institute), R. Fay (U.S. Census Bureau), R. Little (UCLA), J. Hoem (University of Stockholm), and L. Lillard (Rand Corporation).

The organizing Committee is soliciting and will review and select abstracts for contributed papers on topics related to panel surveys. Abstracts are due by September 1, 1986. If you are interested, complete the abstract form (page 7) and send to International Symposium on Panel Surveys, C/O American Statistical Association, 806 15th Street, N.W. Washington D.C. 20005.

If you would like more information about the Symposium, write to the same address for a preliminary program.

2.4. SURVEY METHODOLOGY

At the Amsterdam meeting, an agreement was reached to make the Survey Methodology Journal published by Statistics Canada available to IASS members at a reduced rate. This Journal is published biannually and deal with broad range of topics of interest to survey statisticians.

Here is the contents of the most recent issue :

1. M.B. Wilk

The Relationship between Statisticians and Statisticians

2. J.D. Drew, Y. Bélanger, and P. Foy

Stratification in the Canadian Labour Force Survey

3. D.R. Bellhouse

Sampling Microfilmed Manuscript Census Returns

4. B.C. Saxena, P. Narain, and A.K. Srivastava

Estimation of Total for Two Characters in Multiple Frame Surveys

5. E.B. Dagum and M. Morry

Seasonal Adjustment of Labour Force Series during Recession and Non-Recession Periods

6. E.B. Dagum, G. Huot, N. Gait, and N. Laniel

Relational Patterns between Total Unemployment and Unemployment Beneficiaries in Canada

7. L. Swain

Basic Principles of Questionnaire Design

8. R.B.P. Verma and P. Parent

An Overview of the Strengths and Weaknesses of the Selected Administrative Data Files

9. R.D. Sharma and C. Wong
Use of Administrative Data Files for Migration Estimates ;
A Case study of Driver's Licence File in Ontario
10. F. Ahamad, R. Chow, O. DeVries, A. Hashmi, and Y. Marcogliese
The Development of Alberta Health Care Records and their Applications to Small-Area
Population Estimates
11. D.G. McRae
The Use of Hydro Accounts in the British Columbia Regression Based Population Estimation
Model.
12. D.S. O'Neil and C.D. McIntosh
Estimating the Age/Sex Distribution of Small Area Population
13. R.B.P. Verma, K.G. Basavarajappa, and R.K. Bender
Estimating Population by Age and Sex for Census Division and Census Metropolitan Areas
14. R.K. Bender
Experience with Small Area Population Estimates.

The price of an annual subscription to Survey Methodology is \$ 10.00 U.S. for members in developed countries and \$ 5.00 U.S. for members in developing countries. Members wishing to receive the Journal should complete the form below and mail it with their payment to the IASS Secretariat, c/o INSEE, 18, Bd Adolphe Pinard, 75675 Paris Cedex 14, France.

Name :

Address :

Yes, I wish to subscribe to Survey Methodology at the IASS member rate. I enclose my payment.

Date :

Signature :

2.5. SURVEY CONSULTATION BY CORRESPONDANCE (S.C.C.)

Mr. V. Verma asks that the following call, already published in the previous issue of the Survey Statistician, be published again.

As a practical measure towards establishing the SCC, the IASS has invited the ISI Research Centre (ISIRC) to collaborate with the Association and, on its behalf, take responsibility for the execution of the service at least for a trial period of two years. Making a tangible contribution towards statistical development of developing countries is an objective which ISIRC shares with IASS. Therefore, both as an IASS Council Member charged with special responsibility for SCC and as Director of the ISIRC, I am very pleased about this proposed arrangement.

The key to operating an effective and useful SCC is to tap the substantial intellectual resources and experience available within membership of the IASS. For this purpose, it is necessary to begin by establishing active panels of experts who will volunteer to provide, promptly and reliably and practically free of charge, technical advice and consultation by correspondance on questions and issues raised by users of the service.

I would like to invite and urge members who feel able to serve on such consultative panels to communicate their willingness to the IASS Secretariat or to me at the ISI Research Centre. Please also indicate your major areas of specialisation and interest in the broad field of survey theory and practice.

Vijay K. Verma

IASS Council Member (1983-87), and
Director of the ISI Research Centre
428, Prinses Beatrixlaan, PB Box 950
2270 AZ Voorburg, Netherlands

The following persons have already volunteered to be consultants ; more candidates are requested .

D.A. Binder (Canada)
R. Burgen (Canada)
H. Choudhry (Canada)
A. Gonzalez de Villalobos (Argentina)
G.B. Gray (Canada)
P. Kumar (India)
S. Kumar (Canada)
A. Munir (Saudi Arabia)
B. Nanjaurma Chinnappa (Canada)
S. Novaro de Cosarinski (Argentina)
R. Platek (Canada)
P.S.R.S. Rao (U.S.A.)
D. Singh (India)
M.P. Singh (Canada)
S. Stepancick (Argentina)
I.B. Thomsen (Norway)
K.E. Waidyanathan (India)

2.6. MEETINGS OF THE EXECUTIVE COMMITTEE

An informal meeting was held in the Hague, on February 24 th, between the President, I.P. Fellegi, and the Executive Director, X. Charoy. V. Verma, member of the council, attended the meeting.

The formal meeting of the council will take place in Paris, between September 8th and 12th 1986.

2.7. POSTAL ACCOUNT

I.A.S.S. has opened in Paris a postal account ; here is its number :

Establishment code	30041
Agency code	00001
Number of account	1223318 Z

2.8. VOTE ON THE STATUTES

The counting of the votes on the amendments to the statutes of the IASS has been made on January 6th 1986.

Voters	326
Non valid votes	10
Valid votes	316

The results, by group of amendments, are the following :

Amendments n°	Approved	Not approved	Absention or blank
1, 3, 4,	306	5	5
2	294	9	13
5	289	6	21
6, 7	283	14	19
8	300	4	12
9	298	10	8
10	311	-	5
11	309	-	7

Consequently, the proposed amendments are all approved.

3 Local Representatives

3.1. COUNTRY REPORTS

3.1.1. Botswana

Coverage and response problems in the Botswana Agricultural Census
by Robin Rothfield

The Botswana Agricultural Census of 1982 highlighted two main coverage and response problem areas. These were :

- duplication in the listing holders, and
- response errors in the data supplied on cattle numbers.

Duplication arises as a result of a holder having two or more dwellings in different locations, for example one in the village and one in the lands, with family members being resident in both dwellings at the time of listings. According to the "Guideline for Designing and Executing Small Scale Surveys in Botswana" published by the Botswana Central Statistics Office, an estimated 68 percent and 50 percent of people in village and non-village areas respectively have two or more dwellings. However not all such holdings would give rise to duplication because not all of them had family members living in both or all dwellings at the same time.

The method used to overcome duplication in the Agricultural Census was to ask a filter question at the listing stage and to make appropriate deletions on the listing form. A subsequent analysis of the listing form provides an estimate of the effect of duplication as 29 per cent ie the duplication to be expected in the absence of the filter question. Pilot post enumeration checks were conducted in order to verify the matching of dwellings belonging to holdings filtered out on the listing form. A by-product of these pilot checks was evidence of undercoverage in the listing of holders.

Response errors in the data supplied on cattle numbers appear to be due to two main factors, ie :

- . a tendency of respondents to understate the size of the herd - this applies particularly when the respondent is not the holder, and
- . a tendency of respondents to exclude oxen from their herd count - some holdings reported owning and using oxen for cultivation but declared nil oxen as part of their cattle herd.

Pilot post enumeration checks of holdings using but not declaring ownership of oxen as part of their cattle herd suggested that the overall estimate of the cattle population would need to be raised by about 17 %.

For further information concerning this paper please write to :

Mr Robin Rothfield
Australian Bureau of Statistics
GPO Box 2796Y
Melbourne 3001
AUSTRALIA

3.1.2. Federal Republic of Germany

Brief report on the preparing meeting of the section "Methods of statistical surveys" on 24 September 1985 in Bonn, Federal Republic of Germany

Annual Session on the German Statistical Society (Deutsche Statistische Gesellschaft)
23-27 September 1985

With regard to the growing importance of survey statistics and aiming at an improvement of the international communication in this realm, a new section of the German Statistical Society "Methods of statistical surveys" is planned following an initiative of the local representative Professor Dr. Heinrich Strecker, Tübingen. The first, preparing meeting took place during the Annual Session of the German Statistical Society in Bonn on 24 September 1985. The necessity to establish this new section has been appreciated by the presence and address of Mr. X. Charoy, Executive Director of IASS. The following papers have been read during this meeting :

Address by the chairman of the German Statistical Society (Professor Dr. H. Grohmann, Frankfurt am Main).

Some remarks on the establishment of the new section, its relevance and tasks (Professor Dr. H. Strecker, Tübingen)

Address by IASS (Mr. X. Charoy, Executive Director IASS, Paris)

Discussion of methods from the legal point of view with reference to the decision of the Federal Court of Constitution (Bundesverfassungsgericht) on the Population Census (Professor Dr. F. Badura, München)

Survey methods in the past, present time and future - censuses versus sample surveys (Professor L. Herberger, Wiesbaden)

Supplementary contribution (Professor Dr. H. Grohmann, Frankfurt am Main)

Methods and technics of data processing in German official statistics (Dipl. Math. R. Deininger, Stuttgart)

Supplementary contribution (Dr. R. Wiegert, Tübingen)

Multivariate statistical procedures and complex sample designs (Dr. H.P. Kirschner, Mannheim)

Supplementary contribution (Dr. S. Gabler, Mannheim)

There was a discussion after each topic.

Meetings of the section will be arranged after its establishment in connection with the Annual Session of the German Statistical Society. Members of IASS wishing to attend the meetings will be welcome. Problems of national and international survey statistics will be dealt with. The next meeting will take place in Frankfurt am Main in September 1986.

(H. Strecker, Local Representative of IASS,
Federal Republic of Germany, 14.03.86)

3.1.3. Lebanon

A large scale survey has been carried out in the Metropolitan Region of Beirut (which contains a little less than half of the Lebanese population, that is 1,3 million inhabitants).

The aim of this survey were to study the landed and built property, the economic activities and establishments and the dwellings-households.

The sample for these three topics comes to 25.000 plots (out of a total of 160.000), 6.000 activities (out of a total of 60.684) and 11.000 dwellings-households (out of a total of about 250.000).

The field work and the capture of the data have already been achieved : the survey is now at the stage of electronic processing.

This work has been realized by MASS in coordination with "Institut d'Aménagement Urbain de la Région Ile de France".

The second survey was a study about all the medias in Lebanon : audio, audio-visual, written daily press, weekly or monthly magazines, pictures, video. The study concerned a national sample of 2138 adults aged 17 and more, covering all the region of Lebanon.

The data processing has been conceived in a combinatory perspective where it is possible to highlight the habits and exposure frequency to each of the medias, and above all to draw out a profile of each media in terms of socio-demographic, socio-economic and socio-cultural characteristics (way of life, particular sensitivities of the public, society model in the Maslow conception).

It must be added that, in spite of the condition of comparative temporary insecurity, we succeed in performing national scale surveys and in covering various topics, while mastering both field work and survey tools.

3.2. NEW LOCAL REPRESENTATIVES

New local representatives

MOROCCO M. Abdel-Aziz EL GHAZALI
Direction de la Statistique
BP 178 RABAT
MOROCCO

COMMONWEALTH CARRIBBEAN COUNTRIES

M. Jack HAREWOOD
Institute of Social and Economic
University of the West Indies
Ste Augustine
TRINIDAD

Mr. Harewood was already Local
Representative for Trinidad and Tobago

4 Question/Answer

Conducted by Leslie Kish. Please send Questions to him (ISR - The U of Michigan, Ann Arbor, 48106, USA), or to IASS, Paris. Please indicate whether or not you want your name given with the question. Please consider this as an open forum, and we shall gladly print (after refereeing) additions, modifications, discussions of past published answers. Contributors to answers will be acknowledged.

4.1. : This is happily becoming a forum for statisticians with questions and with answers as well. The programs of measurability, first raised in S.S. 13 and continued in S.S. 14, have attracted two more answers I am glad to publish and I am willing to go on to other topics in the future. But I would like to hear answers on the related question of the stability of estimates of sampling errors. This seems to be, according to my consultations, a common problem that must be handled somehow, but without a methodological literature of how to choose strategies for treatment. We would welcome references either in the sampling literature or in that of experimental designs, where small numbers of "primary" units must be even more common.

Prof. J.N.K. Rao (Carleton U, Ottawa, K1S 5B6, Canada) sent this invited contribution.

I have read with interest the recent discussion on "measurability" and "unbiased variance estimation" in The Survey Statistician. In response to Dr. Tepping's remarks on the existence of unbiased variance estimate for a two-stage design with single element selection from each sample cluster, Dr. Kish raised the following question : "It might be interesting to find whether $P_{ij} > 0$ knowable is necessary and sufficient for $E \text{ var}(\hat{Y}) = \text{Var}(\hat{Y})$ ". The answer to this question is well-known in the unified sampling theory literature. Hanurav (1966) has shown that $E \text{ var}(\hat{Y}) = \text{Var}(\hat{Y})$ for a general linear unbiased estimator, \hat{Y} , of a total if and only if the joint probabilities $P_{ij} > 0$ for all $i < j$. The class of unbiased estimators covered by this result includes all the standard estimators like the Horvitz-Thompson estimator, the ratio estimator under probability proportional to aggregate size sampling and the generalized difference estimator (see, e.g., Cassel, Sarndal and Wretman's book, Wiley, 1977). I might also point out that in Dr. Tepping's design, the joint probability $P_{ij} > 0$ when elements i and j are members of the same cluster, contrary to his statement. This is

true because of with replacement sampling at the first-stage and independent selection of a single element each time any cluster is selected. For instance, the element i may be selected when the particular cluster is drawn for the first time and the element j selected when it is drawn again.

Finally, I would like to point out that nonnegativity of the unbiased variance estimator should be regarded as an essential requirement. In my (1979) paper I have given the necessary form of any nonnegative quadratic unbiased variance estimator. A practical implication of this result is that any estimator not belonging to this class should not be used since it cannot be nonnegative. For instance, the Yates-Grundy variance estimator belongs to this class while the variance estimator originally proposed by Horvitz and Thompson (1952) is outside this class.

REFERENCES

- Hanurav, T.V. (1966). Sankhyâ, 28, 175-204.
Horvitz, D.G. and Thompson, D.J. (1952). J. Amer. Statis. Assoc., 47, 663-685.
Rao, J.N.K. (1979). J. Indian Statis. Assoc., 17, 125-136.

J.N.K.RAO

Dr. Eli S. Marks (Chevy Chase, MD, USA) sent this contribution

I agree with Ben Tepping in S.S.13 (as you do) that the requirement $P_{ij} > 0$ "for all pairs of elements in the population" is not required for "measurability". I would suggest, however, the substitute requirement of non-zero joint probability of selection in the sample for all pairs of first stage sampling units in the population. I think that this and the requirement of 2+ first stage sampling units (and at least one probability selection within each selected first stage unit) are, as you suggest, equivalent.

As to whether the above requirement and "measurability" are equivalent, that depends, of course, on how you define "measurability" be restricted to situations where the probabilities are "knowable" ; although I also feel (as you and Ben do) that the variance of some statistics (mean, moments, correlation coefficient, etc.) from a sample where the probabilities of selection are unknowable but equal is "measurable" (see Note 1). This is also true, I suggest, for samples where the probabilities are not knowable but their ratios are, so that the correct weights for making a consistent estimate of means, other moments, correlation coefficients, etc. can be applied.

However, I am much more concerned with the goals of the terms "probability sampling" and "measurability" than with the precise definitions. I like very much the last paragraph of your "answer" where you say that "definitions should not be our masters but our servants". One requirement for having good "servants" is that we have clearly in mind what we want those "servants" to do. Here, it is clear that the purpose of "probability sampling" is to be able to make "reasonably unbiased" estimates or, at least, "essentially consistent" estimates.

The purpose of "measurability" is (as you and Ben make perfectly clear) to be able to make consistent estimates of the variance of the estimates. From this standpoint, while it may be important, as you state, to "keep the definitions of probability samples and measurable samples as two distinct criteria", it makes no sense to call estimates with a large or unknown bias "measurable". On the other hand, as your comments on "probability samples that are not strictly measurable" and on "samples that permit the computation of variances even if they are not probability samples" suggest, there are samples which do not meet the strict definitions but do, nevertheless, permit the control or measurement of bias and variance.

I am particularly bothered by the fact that the strict definition of "measurability" will exclude many perfectly acceptable (even desirable) sampling procedures. On the other hand, a broader

definition may fail to distinguish clearly enough between "acceptable" and "unacceptable" sampling procedures.

For example, I am not happy with the suggestion, without considerable additional qualification, that "replicated samples permit the computation of variances". While many replicated samples give quite satisfactory variance estimates, for other samples, the variance estimates are very dubious or are associated with statistics subject to large or unknown biases. Thus, it is frequently easy to spot quota samples which are so badly biased that the variance estimates would be useless even if you "replicated" the sample 100 times ! Furthermore, you and Ben and any other competent observer would agree that these samples were unacceptable. Nevertheless, putting down criteria which would reject these samples and still accept other samples which all competent observers would judge to be satisfactory (or, at least, the best attainable under the circumstances) is not a task for which I can foresee a successful solution.

Marks also points out printing error in the Yates-Grundy formula on the bottom of page 8 of S.S.13. It should be :

$$\text{Var}(\bar{Y}) = \sum_{i < j} (P_i P_j / P_{ij} - 1) (y_i / P_i - y_j / P_j)^2$$

4.2. : Please clarify the differences between nonresponse and noncoverage. Does noncoverage refer to provinces or districts omitted from the sample ?

I shall relate this answer to the "four distinct populations for the practice of survey sampling" : Survey, frame, target and inferential populations, that I offered under "Terminology" in S.S. No. 1, (Feb. 1979). This seems elaborate compared to an abstract treatment of all "missing data" as having zero value for all variables, including the case counts. However, the elaborate distinctions seem justified by the practical differences in how they can be treated, although the distinctions are often not entirely clear-cut. Nevertheless, the concepts, the treatments and the terminology are becoming standardized now (Madow W G, Olkin I and Rubin D B, 1983, Incomplete Data in Sample Surveys ; Kish L 1965, Survey Sampling, Sections 13.3 and 13.4).

a. Item nonresponses are non-ascertained responses for individual variable(s) on mostly complete responses. These may be adjusted for with the aid of models and with either weighting or imputation from the available responses within the sample. With that and with sampling errors computed from the sample, inferences are made to the survey population.

b. Total nonresponses of diverse kinds (refusals, not-at-homes, incapacity) refer to responses from cases, individuals, selected and designated for the sample. The size of the nonresponses may be estimated from the sample records, with proper effort and care, and that spans the gap from the survey population to the frame population. But estimating their effects would need models and auxiliary data.

c. The size of noncoverage can be estimated only with models and with checks from outside sources. But this portion also belongs to the target population. Noncoverage is the difference between undercoverage and overcoverage. In most population surveys the undercoverage dominates, but in some surveys (e.g. crop cuttings of small plots) overcoverage may be important.

d. Exclusions, I propose, as a brief name for deliberate omissions of parts of the population. They usually have geographic, administrative substantive (age, sex, ethnic, etc.), or other boundaries and definitions, and it is best not to confuse them with noncoverage of the target population. They may belong more in the gap between the target population and the many inferential populations to which survey results may be inferred with models, explicit or implicit.

5 Announcements

5.1. ISI SECTION ON OFFICIAL STATISTICS

The International Statistical Institute has established a new Section named : International Association for Official Statistics (IAOS).

The objectives of the Association shall be to promote the understanding and advancement of official statistics and related subjects, and to foster the development of effective and efficient official statistical services through international contacts among individuals and organizations including users of official statistics as well as research institutes.

The IAOS is an international association which is thus open to all those who are interested in official statistics in the broadest sense : the membership is not to be restricted to official statisticians but in particular academic statisticians and others using official statistics are also encouraged to join the IAOS.

The ISI Bureau has appointed a Provisional Executive Committee charged with the task of making the IAOS operational. The Committee is composed of : Chairperson V. Nyitrai (Hungary), M. Beyene (Ethiopia), J.L. Bodin (France), T.N. Güner (Turkey), T. Nakamura (Japan), J.L. Norwood (USA), L. Klaassen (Netherlands), E. Lunenberg (ISI-ex officio).

The annual membership dues for 1986 and 1987 are fixed at 35 Swiss francs. Those enlisted as members and having paid the 1986 dues before June 1, 1986, will be designated as IAOS Founder Members. UNESCO coupons may be used for dues payments.

Further information and application forms may be obtained from the ISI Permanent Office, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, The Netherlands.

5.2. STATISTICS CANADA. SYMPOSIUM ON MISSING DATA IN SURVEYS. 16-17 APRIL 1986

The Simon Goldberg Conference Room overflowed with survey statisticians on April 16 and 17 when Statistics Canada held its symposium on "Missing Data in Surveys". The conference was the third Methodology Symposium - the previous two were on Small Area Data and Data Analysis - sponsored jointly with Statistics Canada and the Laboratory for Research in Probability and Statistics at Carleton University.

Several renowned statisticians from Canada and the United States were invited to participate in the Symposium and presentations were made by specialists from various statistical organizations in the United States, Statistics Canada as well as experts from Harvard University, Carleton University, the Universities of Michigan, Montreal, Rochester, Toronto, and Waterloo. The diversity of backgrounds was reflected in the range of papers presented.

The symposium was opened by Chief Statistician, Ivan Fellegi. He spoke of the international community's concern about the growing gap between theoretical and applied statistics, and lauded the organizers for bringing together professionals from both fields. While stating that the primary purpose of the conference was to make headway in the chosen topic, Dr. Fellegi also recognized that the underlying theme was the extent to which statistical agencies should be involved in model building.

Papers presented at the Symposium will be published in the June 1986 edition of Survey Methodology Journal produced by Statistics Canada. Further information about the Symposium or the Journal can be obtained from Dr. M.P. Singh, Methodology Branch, Statistics Canada, Jean Talon Building, 4th Floor, Tunney's Pasture, Ottawa, Ontario, K1A 0T6.

It should be noted that the Journal is made available to the IASS members at a reduced annual subscription of \$10.00 U.S. (in developed countries) and \$5.00 U.S. (in developing countries) by sending the subscription to the IASS Secretariat in Paris.

LIST OF PAPERS PRESENTED AT THE SYMPOSIUM (IN THE ORDER OF PRESENTATION)

1. G. Kalton and D. Kasprzyk
Handling Missing Survey Data
2. R. Platek and G.B. Gray
On the Definitions of Response Rates
3. D.W. Chapman, L. Bailey, and D. Kasprzyk
Non-Response Adjustment Procedures at the Census Bureau
4. L.R. Curtin
Adjustment for Missing Data in Health Surveys - NCHS Experiences
5. P.S.R.S. Rao
Ratio Estimation with Subsampling of Non-Respondents
6. S. Michaud
Comparison of Weighting and Imputation for Estimation of Non-Sampled Records
7. C. Sarndal
Regression Approaches to Estimation in Presence of Non-Response
8. G. Lazarus
A Method of Imputing Non-Respondents and Incomplete Records for Special Care Facilities
9. V.P. Godambe and M.E. Thompson
An Optimality Result in Presence of Non-Response in Sample Surveys
10. D.B. Rubin
Multiple Imputation for Industry and Occupational Coding
11. P. Giles and C. Patrick
Imputation Options in a Generalized Edit and Imputation System
12. M.S. Srivastava and E.M. Carter
Maximum Likelihood Method for Non-Response in Sample Surveys
13. M.A. Hidiroglou and J.M. Berthelot
Statistical Editing and Imputation for Periodic Surveys
14. S. Hinkins and F. Scheuren
Hot Deck Imputation Procedure Applied to a Matrix Sample Design

15. V. Tremblay

Practical Criteria for the Definitions of Weighting Classes

16. S. Cheung and C. Seko

Transformation of Matching Variables in Nearest Neighbour Method : National Farm Survey Estimates

5.3. INSTITUTE OF STATISTICIANS / ROYAL STATISTICAL SOCIETY CONFERENCE 1986 : INDUSTRY, QUALITY AND STATISTICS 10th - 12th SEPTEMBER 1986

As part of the programme for U.K. Industry Year 1986, The Institute of Statisticians and The Royal Statistical Society jointly, with other interested organisations, are to hold a Conference with this title at the attractive Lowfield Hall Site at Totley on the edge of Sheffield, part of the Sheffield City Polytechnic.

The Conference will seek to stimulate discussion rather than rely upon passive reception of lectures ; the statisticians' contribution of Quality will be stressed and, it is hoped, critically assessed.

Planned themes include Quality in Manufacturing Industry, Education and Training, Standards and Legal Aspects, Quality and the Consumer, Recent Developments in Quality Methods.

Write for details to : Mrs L. Butterworth, The Conference Secretary, The Institute of Statisticians, 36 Churchgate Street, BURY ST. EDMUNDS, Suffolk, IP33 1RD, England.

Offers of Papers to the Technical Convenors (Dr. Derek Bissel, Dr. Denis Farlie, David Newton, Bill Pridmore, Roger Williamson) via the same address.

5.4. INSTITUTE OF STATISTICIANS RESIDENTIAL COURSE : EXPERIMENTAL DESIGN 22nd - 26th September 1986 Lancashire Polytechnic at Preston

In recent years it has been increasingly important for research workers to pay attention to the statistical principles of Experimental Design. Practitioners have become aware of the fact that only seldom does an experiment yield a conclusive result. The decision making process is probabilistic in nature and consequently an experiment needs to have an "efficient" design from a statistical viewpoint. Only then can results with a measurable degree of reliability be achieved. These principles have a wide area of application including Agriculture, Biometrics, Chemistry, Medical Sciences, Psychology and Social Sciences as well as many aspects of Industrial Research.

The Course will be organised into lectures, seminars and practical sessions at the computer terminals. The material covered will concentrate on the methods which group together under the heading of "Analysis of Variance". The Course will be particularly suitable to experimental workers who would like a more complete view of the subject.

A working knowledge of elementary statistical methods, including simple tests of significance, is all that will be expected of delegates. Particular emphasis will be placed on practical applications, and considerable use will be made of computer packages for analysis of the data. The numbers attending the Course will be strictly limited.

The Course is being organised by the Institute of Statisticians and staffed by members of the School of Mathematics and Statistics at Lancashire Polytechnic.

For an Application Form please contact : Mrs L. Butterworth, The Conference Secretary, The Institute of Statisticians, 36 Churchgate Street, BURY ST. EDMUNDS, Suffolk, IP33 1RD, England. Telephone : (0284) 63660.

6 Statistical Abstracts

As a new service to members we have established a team of people who will monitor the contents of the main statistical journals. When we see an article which seems to be of particular interest, we will arrange a brief summary to describe the contents. Our purpose is to encourage members to read the original articles rather than to provide a self-contained summary of results. We hope that members find this service of value and we would welcome comments, which should be sent to Professor D. Holt, Department of Social Statistics, University of Southampton, Southampton SO9 5NH, England.

- 6.1. AUTHOR A.J. FISCHER and R.D. LEWIS
TITLE Deliberately biasing survey questions
JOURNAL Australian Journal of Statistics, 1985,
27 (1), 20-35

SUMMARY

In "before" and "after" surveys of Attitudes Towards Random Breath Testing (RBT) in South Australia, three basic versions of the questionnaire were used. In the first, a set of "lead-up" questions, which were designed to deliberately bias the results towards acceptance of the tests, was included before the main questions ; in the second, there were no lead-up questions ; in the third, a different set of lead-up questions was used, and was aimed at deliberately biasing the results against the tests. The results in two out of the four attempts to influence the answers (compared with no lead-up questions) were significant. The difference between the positive-and negative-biasing versions was highly significant in both cases.

It was shown that it was possible to use lead-up questions of a non-blatant nature, before the introduction of the tests, to change significantly the proportion of those in favour of the tests, by about 12 percentage points for a pro-test lead-up, and minus $3\frac{1}{2}$ for an anti-test lead-up. Thus, the difference between the pro-and anti-RBT lead-up questions was almost 16 percentage points. After the introduction of the tests, the difference between pro- and anti-RBT lead-up questions fell to about 11 percentage points. This compares to a sampling error of about 2 percentage points in each of the before and after surveys. The changes in context as well as the question wording per se can give rise to effects which dwarf the sampling error.

- 6.2. AUTHOR LESLIE KISH
TITLE Sample surveys versus experiments, controlled observations, censuses, registers, and local studies.
JOURNAL Australian Journal of Statistics, 1985,
27 (2), 111-122

SUMMARY

Comparisons of sample surveys with other methods of statistical designs have been made entirely separately in three distinct contexts. In each context distinct aspects have been explored and distinct criteria have been used for the comparisons. Here I attempt to combine those three comparisons so that they might cast light on each other.

We shall review each of these comparisons. First, of sample surveys with experiments and controlled observations. Second, of samples with censuses and registers. Third, of population sample surveys with local studies. Most statisticians are aware only of one of these comparisons, or of none. In most situations only one of these may be germane, but seeing all of them together may have heuristic or synergistic benefits. Moreover, there are some situations where the choice of design may actually go beyond the confines of one of the three comparisons. For example, some medical problems may involve medical registers as well as samples and experiments.

Then in a summary, let us attempt a super-comparison of the three comparisons at a higher level. Is there some common principle for unifying the three comparisons? I suggest that representation in its broadest sense, over all dimensions may yield that unifying principle, that hyper-criterion.

In all of these discussions I shall deal only with statistical aspects of design, leaving aside important substantive and measurement problems, as well as statistical analysis.

6.3. AUTHOR

E.K. FOREMAN

TITLE

Survey design

JOURNAL

Australian Journal of Statistics, 1985,

27 (1), 1-19

SUMMARY

Survey design involves planning and documenting questionnaires, sample selection and survey operations. It constitutes a simultaneous solution to numerous interrelated conceptual and practical design issues, more than may usually be settled effectively, or even recognised, in any reasonable time by contemplation alone. The alternative is an iterative approach, making a trial plan, testing and then improving it, and, if necessary, repeating it until a satisfactory plan is evolved. Pilot testing can then become the focus of design decisions by providing relevant data and operating experience, and by using experimental design methods, as a basis for adroit revision of trial survey plans. This paper concerns the planning of efficient survey design processes along these lines.

7 Terminology

Following the publication of the column on longitudinal surveys, we received several comments from interested parties. The overwhelming majority of comments were very favorable. There are some aspects of the definition that were troubling to some. It seemed incongruous that some surveys that had a longitudinal element in the design, such as the Current Population Survey, were not included as a longitudinal survey because the analysis was on a cross-sectionnal basis. Therefore some preferred that the definition of a longitudinal survey be broken into two parts, just as we do survey design. The survey design includes the plan for selecting the units and the plan for estimation and analysis. Similarly, we could refer to a survey with a longitudinal design only or a survey with longitudinal estimation implying a longitudinal design.

Questions were raised about whether only interview surveys were to be considered. There are medical studies, administrative record studies, and studies of road surfaces and so forth that do not depend on interviewing. Should these kinds of studies be included? If so, the definitions should state this explicitly.

The whole question of prospective and retrospective data collection was raised. Longitudinal data can be collected retrospectively in the form of histories in cross-sectionnal surveys. Because of recall problems, this may be undesirable. The ability to collect longitudinal data on a periodic basis is one of the advantages of a longitudinal survey. Some readers wanted the role of prospective and retrospective data collection mentioned specifically.

It was mentioned that with the definition given of a longitudinal survey, it would be possible to have unrelated questions asked at each time period. Clearly the definition must state that there be overlapping subject matter on each occasion.

The issue of what population is represented by a longitudinal survey was not addressed. A cross-sectionnal survey represents the population at the time of the survey, except for coverage errors. A longitudinal survey may not represent the population at the time of data collection. This is a difficult question and seems to vary across longitudinal surveys.

Altogether, the Terminology Committee received excellent responses. We will attempt to consolidate the comments into a definition of longitudinal surveys for the next issue. In addition, we will issue our preliminary definitions for accuracy and precision of sample surveys.

B. BAILAR

MEMBERSHIP APPLICATION FORM

I wish to enroll as a member of the International Association of Survey Statisticians.

Mr
NAME Mrs First name (s)
Miss

Date of birth: Nationality :

Profession : (if retired, please indicate)

Title (professor, doctor) :

Business address :

Name of office :
Street : N° :
City : Postal Code :
Country :
Telephone n° : Extension :

Home address :

Street : N° :
City : Postal Code :
Country :
Telephone N° :

IASS correspondence should be sent to :

Business address
Home address

Your mother tongue is :
The official language of your IASS correspondence will be :
English
French

I am aware that the membership dues have been fixed at 16. 00 US\$ (or the equivalent in other currencies) and that, exceptionnally for nationals of developing countries, these dues have been reduced to 8.00 US\$.

Modes of payment :

- Cheque payable to the International Association of Survey Statisticians*
- UNESCO coupons (for countries with inconvertible currencies)*
- Bank account of the IASS n° 4586-32 with the Banque Nationale de Paris - Agence Didot, 67, boulevard Brune, 75014 Paris, France. PLEASE SHOW YOUR NAME ON THE CHECK.
- Other

* Sent directly to : IASS Secretariat
c/o INSEE
18, boulevard Pinard
75675 PARIS CEDEX 14 - France.

SIGNATURE :

