

THE WORK OF THE COMMITTEE ON NATIONAL STATISTICS

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The Committee on National Statistics was established by the National Research Council (the operating arm of the National Academy of Sciences) in response to growing concern about the adequacy, validity, timeliness, and utility of statistical procedures and information central to major national decisions.

Although the NRC has had a long-standing interest in the quality of the statistical information basic to public policy formation, the immediate impetus to establish the Committee came from a major recommendation of the President's Commission on Federal Statistics, that an independent, continuing group be established to review the federal statistical system and recommend improvements. The Commission reported:

"We are convinced that . . . , a need exists for continuous review of federal statistical activities, on a selective basis, by a group of broadly representative professionals without direct relationships with the federal government."

and urged:

" . . . that an NAS-NRC committee be established to provide an outside review of federal statistical activities." 1/

The Committee, first appointed in January, 1972, is attached to the Division of Mathematical Sciences in the National Research Council. Members are appointed for three-year terms and serve without recompense. Current members of the Committee are William Kruskal, chairman, Douglas Chapman, Morris Hansen, Stanley Lebergott, Frederick Mosteller, I. Richard Savage, Elizabeth Scott, William Shaw, and Conrad Taeuber. In addition, Cuthbert Daniel and Bernard Greenberg served through the spring of 1973. The Committee now has a professional staff of three, all serving part-time, Margaret Martin, Hyman Kaitz, and Edward Tufte.

The Committee and its staff represent a broad spectrum of disciplines in which statistics are applied, as well as a variety of experience in statistical methodology, data collection, and data analysis. As a committee sponsored by the National Academy of Sciences, it is primarily oriented toward giving scientific advice to the federal government. Yet even its name indicates a somewhat broader interest — "national" statistics rather than "federal" statistics is intended to denote any statistics of important public concern, whether collected by the federal government or not.

Coming to the Committee months after it had been established, I searched for a detailed statement of its functions or a "frame of reference" to help guide future planning. The most direct statement was in the President's Commission's report and might be summarized in three words as, "Carry on, chaps."

In these circumstances one might think that the early attention of the Committee would have concentrated on building such a framework and establishing priorities within it. However, it early became apparent, with the wide range of backgrounds and experience represented on the Committee, its infrequent meetings, and the multitude of urgent statistical problems pressing for attention, that we might better proceed with a few critical projects immediately. We were in danger of bogging down in discussions of generalities.

Partly, the functions of the Committee on National Statistics may be viewed in terms of what the Committee is not. It is not a group representing the profession, as does the American Statistical Association; it is not a group representing users, as does the Federal Statistics Users' Conference; it is not intended to duplicate the functions of the federal statistical agencies, nor of academic research, nor of commercial or non-profit contracting organizations. Rather, it is expected, by selecting significant, broadly applicable projects and approaching them in a creative, multidisciplinary fashion, to focus the expertise of specialists outside the government on important statistical issues. At the same time, these projects must be such that most of them can be funded by the specific agencies which will be the recipients of the advice; and the process of developing the projects must be reasonably compatible with the style of operation of the National Research Council.

Despite these rather formidable constraints, there is no lack of suitable issues to begin on. We are constrained, rather, by the smallness of our staff, the limits of our expertise and the interests of our members and possible sponsors. The National Research Council has given us a comfortable home and all manner of supportive services; the Russell Sage Foundation has given us an initial start-up grant to get going and show what we can do. So where are we?

We are in that suspenseful period between project conception and initial approval on the one hand and the actual transfer of funds on the other. We have two projects now in the final stages of

consideration by the sponsors. Several more are in various stages of preparation.

Once we have an approved project, we plan to appoint a panel to carry forward the study and to hire appropriate supporting staff. The end product would be a report of findings and recommendations suitable for public dissemination.

We do have some general funds, and hope to continue finding resources to support some small activity at the Committee's own option. Our goal is to reach a "steady state" in which we might be working simultaneously on four projects in various stages of completion. Of the four, we would hope that three would be funded specifically by federal agencies or other sponsors; the fourth would be undertaken by the Committee — perhaps something so broadly applicable no one agency would be a suitable source of funds; perhaps a small-scale exploratory investigation which might develop later into a separately funded project.

So far I have sketched organization, functions and modus operandi in general terms. Specific project plans are of more interest and that is what I shall spend the rest of my time describing. I must preface all of these plans, however, by noting they are dependent on final actions by others. We have rushed at high speed more than once during the past year to submit proposals to meet the requirements of potential sponsors, only to find that for one reason or another action on the proposal has been delayed. It reminds one of that description of army life — "Hurry up and wait."

I should like to describe briefly the four projects that are farthest along. The first should be of particular interest to the Social Statistics Section. Five times in little more than a decade the Section has sponsored a program at the annual meetings on the statistical needs in the law enforcement and criminal justice area. ^{2/} This interest has been matched elsewhere with the result that the Law Enforcement Assistance Administration has been given the responsibility for making major improvements. The most innovative statistical project is the National Crime Panel, sometimes referred to as victimization surveys. These are surveys of samples of households and of businesses to obtain reports of crime from the victims.

The LEAA, with the assistance of the Census Bureau, has undertaken a program of methodological testing, following the pathbreaking efforts undertaken for the President's Crime Commission in 1967. The preliminary testing and experimenting phase was completed more than a year ago, and, with major decisions made, a national sample of households was drawn and enumeration started in mid-1972. Enumeration of a sample of com-

mercial establishments commenced a few months later.

We have a project proposal, designed at LEAA's request, to evaluate this National Crime Panel, not only from the point of view of its statistical methodology, but also of its utility. How does such a statistical undertaking serve the variety of users, and in particular, the needs of social scientists? Our proposal, which is awaiting final action at LEAA now, envisions a cooperative review by the Committee on National Statistics and the Academy's newly organized Assembly of Behavioral and Social Sciences. We shall also keep in close touch with the Social Science Research Council's subcommittee on Criminal Statistics.

Once the go-ahead signal is given, the Committee will appoint a subcommittee or work group to engage in the actual review, with at least one member of the parent Committee participating, together with specialists in the sociology of crime, statisticians, and other experts. One member of the Committee on National Statistics, Conrad Taeuber, has already agreed to act as chairperson of the subcommittee.

The National Crime Panel raises many challenging methodological questions, questions related to memory bias and recall problems, ability of one respondent to report for another and the specifics of question-wording on sensitive and easily misunderstood subjects. Many of these questions have been tested in preliminary surveys by the LEAA and the Census Bureau prior to making major decisions for the national panel. Thus the present survey of households uses a six-month recall period, because it was found too much was forgotten when the period was lengthened to a year; it interviews each respondent for himself rather than relying on a single household respondent to report for all members; and it uses the technique of "bounded" interviews to prevent "telescoping"—that is, to overcome the tendency of respondents to report major events as having fallen within a specified period when they actually occurred earlier. This telescoping effect can be overcome if a first interview is made, events recorded and then six months later on, during a second visit, reported events are edited on the spot by the interviewer against events reported earlier. The second interview is thus "bounded" by the first, and statistics are compiled only from the second and succeeding interviews. Thus the decisions to use 6 months rather than 12 as the recall period, to insist on interviewing respondents each for himself, and to "bound" the interviews have all served to increase both the quality and the cost of the household survey. For questions such as these, on which considerable methodological work has already been done, I anticipate that the evaluation group might

simply review the evidence and assess the decisions.

Many other aspects may have been less thoroughly considered. This survey, which will provide quarterly estimates of the incidence of crime and much more detail by type and characteristics on an annual basis, will form the basis for time series of numbers and rates of events which inevitably will be compared with data from administrative systems — crimes reported to the police. Specialists already know that there are significant differences in level and one may anticipate at least occasional differences in rates of change from period to period. A review of how best to present and interpret such apparently conflicting evidence to various groups of users might be pursued by the subcommittee. Many other aspects of data analysis will no doubt be considered.

Less fully explored and possibly less obvious are the difficulties of obtaining descriptions of events so precisely that uniform legal concepts can be applied as consistently as possible across public jurisdictions, among different social groups and through time. The National Crime Panel depends on the perception as well as the memory of respondents that certain types of events have occurred. The evaluation group may want to look closely at such issues. Respondent ignorance affects the reports from business concerns in major ways. At the present time, for example, the business reports do not cover types of crimes which are unlikely to be discovered and reported currently as discrete events. Thus robbery is included but shoplifting and employee theft are not, since they remain largely unknown until they are the presumed reasons for "inventory shrinkage".

In addition to evaluating such decisions and exploring alternatives, the evaluation group will be asked to stretch its multi-disciplinary horizons and consider the utility of the entire undertaking. Who will use the results? How? Would some changes in directions or emphasis be worthwhile? One of the most exciting aspects of this project to me is that this is the first occasion of which I am aware in which an independent outside group has been asked to evaluate a major new statistical system at a very early stage — so early, in fact, that no data have yet been published from the national panel.

I mentioned earlier that the Committee on National Statistics hopes to sponsor one project of its own in addition to those funded specifically by others. One such project has been approved and work on it will shortly get underway. This is a project proposed by our consultant, Hyman Kaitz, in which he would deal with several aspects of the problem of using data, subject to errors of various

kinds, in the preparation of press releases. He will consider these problems in connection with economic time series and would deal initially most particularly with the monthly employment and unemployment releases, as an example.

Kaitz is thinking of both the statistical and analytical considerations here and that sometimes they appear to conflict. Geoffrey Moore described some of these conflicts in a recent article. ^{3/} One example was the difficulty of describing to the general public an increase in the white unemployment rate of, say, three-tenths of a point, because it is statistically significant, yet not mentioning a statistically insignificant increase of seven-tenths in the black rate. Kaitz plans to explore this and a number of related questions under 5 headings:

- (1) A review of past practices against the consistent application of known criteria;
- (2) A review of the significance criteria now in use and an examination of alternatives;
- (3) Research on the impact of seasonal adjustment procedures on criteria of significance;
- (4) Research on alternatives to the measure MCD, months for cyclical dominance, as a tool in business cycle analysis;
- (5) Research on how statistical and other significance criteria are translated into ordinary prose for the public and how this process of communication might be improved.

He plans to prepare separate reports on these five sub-topics for circulation and comment by time series analysts. Some of the papers may be exploratory. It is possible that some might develop at a later stage into full-scale projects for which outside funding might be sought. In any case it is expected that wider dissemination of his results will be made following expert review.

Still another project draws in an entirely different area of application. Another committee at the Academy, the Climatic Impact Committee, has asked our assistance in interpreting the fragmentary and conflicting evidence on the incidence of skin cancer. They wish to establish what the relationship between skin cancer and latitude is, as part of an analysis of the possible impact that widespread development of SST planes might have, a question on which they are advising the Department of Transportation. The chain of reasoning seems to be — operation of SST planes may deplete ozone in the upper atmosphere causing an increase

in ultraviolet radiation and skin cancer. Since the average amount of upper atmosphere ozone decreases as latitude decreases, the effect of ozone depletion on skin cancer may be calculated if it is known how the incidence of skin cancer varies with latitude.

The direct effect of latitude is confounded with many other variables — some natural phenomena such as altitude or smog — some demographic such as migration, race, or ethnic group (blacks seldom if ever suffer skin cancer; Scandinavians are not nearly as susceptible as those of Celtic origin) — some social effects, amount of clothing, sun bathing practices — and economic effects, particularly occupations requiring considerable outdoors work as in farming or maritime occupations. Problems of identifying and enumerating cases of skin cancer also present unusual difficulties.

The Committee on National Statistics will attempt to resolve the differences between two existing data sources for parts of the U. S., will comment on the adequacy of the data for correlating latitude and skin cancer incidence, and possibly will make recommendations for developing more adequate information in the future. Present plans are for a quick investigation and early report. Depending on the nature of the findings, the Committee may recommend further work on developing an improved data system.

When the President's Commission on Federal Statistics recommended that an independent advisory committee be set up under the aegis of the National Academy of Sciences, it said in part, "Such a body could monitor the implementation of Commission recommendations and, even more important, conduct special studies on statistical questions it deemed important because their favorable resolution would contribute to the continuing effectiveness of the federal system." ⁴ One of the tasks of the Committee and its staff has been to fit this general prescription into the pattern of operation of the NAS-NRC, which relies mainly for support on funding for specific projects by specific federal agencies.

In part, we have attempted a solution by looking for partial support from other sources, from private foundations, and here we have found both practical support and warm encouragement from the Russell Sage Foundation. But beyond this, I believe that we shall find that we can develop a series of specific projects suitable for agency support which will deal with various aspects of a more general problem. For example, we have already developed a proposal which HEW is considering that would examine what statistical methods might be used to improve the process of determining user needs for statistics and establishing

priorities among them. This would be an exploratory survey, using one statistical center as a case study. Whether or not that specific project is approved, I am sure that the Committee will be dealing with the central issue from various standpoints as time goes on. Already, we have made a beginning at our last meeting of the Committee in Washington by bringing together representatives of economic policy agencies and those responsible for economic statistics for an informal discussion of how priorities are set for economic statistics. Even this brief introduction to the problem evoked a number of suggestions and comments which the Committee no doubt will wish to examine in the future — for example, a proposal that the Statistical Policy Division of the Office of Management and Budget should have some responsibility for developing estimates and projections of important economic variables so that it would be more sensitive to the most important statistical gaps when exercising its statistical planning functions; a suggestion that the "mission-oriented" agencies should be given funds so that they could buy the statistics they need from the statistics bureaus without interfering with the on-going general-purpose statistical series; and finally, reiteration of the basic conflict, in terms of budget and manpower resources, between the needs for national statistics important for policy purposes and the needs for detailed information for local administration of many public programs. This last point brings us full circle — I am sure that the demand for detailed local-area statistics would be one of the most important questions to be explored in the HEW project, should it be funded. Whether or not the Committee gets into some of these issues and their possible solutions in that instance, I am sure it is an area in which, sooner or later, the Committee will do some work.

Another general problem of interest to the Committee is that of confidentiality of statistics. The Committee has not yet determined on any plan of inquiry, but preliminary discussions are being held with the Bureau of the Census to see if we can outline a project of mutual interest.

In summary, we find no lack of possible topics on which the Committee might make a contribution. Our problem is rather one of making an intelligent selection of the most important — of those which are uniquely suitable for a Committee such as ours; which are feasible; in which we believe we can make a real contribution; and last, but by no means least, those with a likelihood that the recommendations of the Committee will be given serious consideration.

In closing, I should like to make just one more observation and perhaps correct a misapprehension arising from my earlier remarks. I said that when I started as executive director for the

Committee staff I found no blueprint of the Committee's functions. After nearly a year, I have produced no blueprint myself, yet looking back at the talk our chairman, William Kruskal, gave more than a year ago to a Federal Statistics Users' Conference, and since reprinted in Science, 5/ I find most of what I wished to say already said — more succinctly, more elegantly and more imaginatively. The Committee is indeed fortunate to have such a perceptive, hard-working and dedicated chairman. Without that kind of leadership, it is hard to see how we could succeed.

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- 3/ Geoffrey Moore, "On the 'Statistical Significance' of Changes in Employment and Unemployment", Statistical Reporter, March 1973, No. 73-9, pp. 137-139.
- 4/ Federal Statistics, Vol. 1, p. 175.
- 5/ William Kruskal, "The Committee on National Statistics", Science, 22 June 1973, Vol. 180, pp. 1256-1258.