

PRINCIPLES FOR A FEDERAL STATISTICAL AGENCY*Relevance to Policy Issues*

A federal statistical agency must be in a position to provide information relevant to issues of public policy.

An agency's priorities are affected by issues and requirements of public policy and federal programs. In many cases, the provision of information to the public concerning a particular subject field is itself a public policy. Users may be federal administrators, or policy makers, the Congress, state and local governments, academic researchers, or other groups and organizations affected by current or prospective federal policies and programs, or the public in general.

In planning its statistical program, an agency should work closely with policy analysts in its department, other appropriate agencies in the executive branch, relevant committees and staff of the Congress, and appropriate nongovernmental groups. The statistics needed for some emerging issues may be identified first by such users or by academic researchers, public interest groups, state or local governments, or the public. Maintaining contact with users is an important function of a statistical agency.

Credibility Among Data Users

A federal statistical agency must have a relationship of mutual respect and trust with those who use its data and information.

It is essential that an agency maintain credibility for itself and for its data and information. In particular, an agency must be perceived to be free of political interference and policy advocacy.

Trust Among Data Providers and Data Subjects

A federal statistical agency must have a relationship of mutual respect and trust with respondents who provide data and with all data subjects whose information it obtains.

An agency must maintain credibility to its providers, by ensuring appropriate confidentiality of responses and informing respondents fully of the expected uses of their information.

PRACTICES FOR A FEDERAL STATISTICAL AGENCY

The effective operation of a federal statistical agency must begin, first, with a clearly defined and well-accepted mission; second, it must have a strong measure of independence. With these two prerequisites, effective operation involves a wide range of practices: fair treatment of data providers, cooperation with data users, openness about the data provided, commitment to quality and professional standards, wide dissemination of data, an active research program, professional advancement of staff, caution in conducting nonstatistical activities, and coordination with other statistical agencies.

A Clearly Defined and Well-Accepted Mission

An agency's mission should include responsibility for assessing needs for information and determining sources of data, measurement methods, and efficient methods of collection and ensuring the public availability of needed data, including, if necessary, the establishment of a data collection program.

A Strong Measure of Independence

Circumstances of different agencies may govern the exact form independence takes. Some aspects of independence, not all of which are required, are the following.

- independence mandated in organic legislation or encouraged by organizational structure. In essence, a statistical agency must be distinct from the enforcement and policy-making activities carried out by the department in which the agency is located. To be credible, a statistical agency must clearly be impartial. It must avoid even the appearance that its collection and reporting of data might be manipulated for political purposes or that individually identifiable data might be turned over for administrative, regulatory, or enforcement purposes.
- independence of the agency head and recognition that he or she should be professionally qualified. Appointment by the President with approval by the Senate, for a specific term not coincident with that of the administration, strengthens the independence of an agency head. Direct access to the secretary of the department or head of the independent agency in which the statistical agency is located is important.
- broad authority over scope, content, and frequency of data collected, compiled, or published. Most statistical agencies have broad authority, limited by budgetary restraints, departmental pressures, Office of Management and Budget (OMB) review, and congressional mandates.
- primary authority for selection and promotion of professional staff.
- recognition by policy officials outside the statistical agency of its authority to release statistical information without prior clearance.
- authority for statistical agency heads and qualified staff to speak on the agency's statistical program before Congress, with congressional staff, and before public bodies.
- adherence to predetermined schedules in public release of important economic or other indicator data to prevent manipulation of release dates for political purposes.
- maintenance of a clear distinction between the release of statistical information and the policy interpretations of such statements by the secretary of the department, the President, or others.

Fair Treatment of Data Providers

To maintain credibility and a relationship of respect and trust with data subjects and other data providers, an agency must observe fair information practices. Such practices include:

- policies and procedures to maintain the confidentiality of individual responses. An agency avoids activities that might lead to a misperception that confidentiality assurances have been breached.
- informing respondents of the conditions of participation in a data collection and the anticipated uses of the information.
- minimizing the contribution of time and effort asked of respondents, consistent with the purposes of the data collection activity.

- respecting the willingness of respondents to contribute to society by fairly representing the information they provide and by making it available for important uses.
- seeking opportunities, as appropriate, to assist data suppliers to make use of the data they themselves have provided.
- Seeking the advice of respondents, as well as others, in planning the scope and content of its program, designing its data collection procedures, and determining its data products.

Cooperation with Data Users

A statistics agency should consult with a broad spectrum of users of its data in order to make its products more useful. It should:

- seek advice on data concepts, methods, and products in a variety of formal and informal ways, from data users as well as from professional and technical subject-matter experts.
- seek advice from external groups on its statistical program as a whole, on setting statistical priorities, and on the statistical methodologies it uses.
- endeavor to meet the needs for access to data while maintaining appropriate safeguards for the confidentiality of individual responses.
- exercise care to make its data equally accessible to all potential users.

Openness About the Data Provided

An agency should fully describe its data and comment on their relevance to specific major uses. It should describe the methods used, the assumptions made, the limitations of data, the manners by which data linkages are made, and the results of research on the methods and data.

Commitment to Quality and Professional Standards

An agency should:

- develop strong staff expertise in the disciplines relevant to its mission as well as in the theory and practice of statistics.
- develop an understanding of the validity and accuracy of its data and convey the resulting measures of uncertainty to users.
- undertake ongoing quality assurance programs to improve data validity and reliability and to improve the processes of gathering, compiling, editing, and analyzing data.
- use modern statistical theory and sound statistical practice in all technical work. Statistical standards are published to guide professionals in the agency as well as external users.
- develop a strong and continuous relationship with appropriate professional statistical organizations.
- follow accepted standards in reports and other releases of data on definitions, documentation, descriptions of data collection methodology, measures of uncertainty, and discussions of possible sources of error.

Wide Dissemination of Data

- dissemination of data and information (basic series, analytic reports, press releases, public-use tapes) should be timely and public. Avenues of dissemination should be chosen to reach as broad a public as reasonably possible.
- Release of information should not be subject to actual or perceived political interference.
- An agency should have an established publications policy that describes, for a data collection program, the types of reports and other data releases to be made available, the audience to be served, and the frequency of release.
- A policy for the preservation of data should guide what data to retain and how they are to be archived for secondary analysis.

An Active Research Program

An effective statistical agency should have a research program that is integral to its activities:

- research on the substantive issues for which the data were compiled in order to develop analyses by those who are close to the data, to guide the survey design, improve concepts, understand the limitations of the data and suggest improvements.
- research to evaluate and improve statistical methodology, in particular the identification and creation of new statistical measures, and research on ways to reduce the time and effort requested of respondents.
- Research to improve an understanding of the role of the agency's information in the policy formation process, in order to make the data more relevant to policy concerns.

Professional Advancement of Staff

- An agency must recruit and retain a professional staff of high caliber – both statisticians and analysts in fields relevant to its mission.
- Personnel policies should encourage staff to maintain and extend their capabilities through appropriate professional activities.

Caution in Conducting Non statistical Activities

An agency should release information identified with a specific organization or entity, such as a hospital or school, for a non statistical purpose only when such release would not conflict with the agency's mission and the practices described above. In particular, an agency should exercise care to assure that such nonstatistical activities do not jeopardize its trustworthiness in the eyes of data providers and credibility among data users.

Coordination with Other Statistical Agencies

Data sharing and statistical uses of administrative records made a statistical agency more effective as well as efficient. When separate data sets are collected and analyzed in such a way that they may be used in together, the value of each may be greatly enhanced (e.g., productivity estimates are ratios of outputs to inputs in which the numerators and denominators are frequently collected by different agencies). An effective statistical agency promotes such data linkages.

When possible and appropriate, federal statistical agencies should cooperate with state and local statistical agencies in the provision of data for subnational areas.

Federal statistical agencies should cooperate also with foreign and international statistical agencies to exchange information, on both data and methods, and to develop common classifications and procedures to promote international comparability of information.

ESTABLISHMENT OF A FEDERAL STATISTICAL AGENCY

The establishment of federal statistical agency, separate from operating units of a department or agency, may be considered for a number of reasons:

- There is a need for information extending beyond the narrow scope of individual operating units and possibly involving other departments and agencies.
- There is a need, in fact or as a matter of credibility, to establish the independence of major data series from policy or operating control.
- There is a need to protect the confidentiality of responses.
- There is an opportunity to achieve greater efficiency or higher quality through a consolidated and more highly professional activity.

Commentary

This section covers most of the topics in the principles and practices; they are offered to explain, illustrate, or define the statement of principle.

Organizational arrangements for producing statistics (principle 8.)

DEFINITION OF A FEDERAL STATISTICAL AGENCY

A federal statistical agency is a unit of the federal government whose principal function is the compilation and analysis of data and the dissemination of information for statistical purposes.

A statistical agency may be labeled a bureau, center, or office or similar title, so long as it is recognized as a distinct entity.

Statistical agencies have been established for several reasons: (1) to develop new information for an area of public concern (e.g., Bureau of Labor Statistics, National Center for Health Statistics); (2) to conduct large statistical collection and dissemination operations (e.g., Bureau of the Census); (3) to compile and analyze statistics from sets of administrative records for policy purposes and public use (e.g., units in the Internal Revenue Service, Social Security Administration); and (4) to develop broad and consistent estimates from a variety of statistical and administrative sources in accordance with a theoretical model (e.g., Bureau of Economic Analysis in the Department of Commerce and Economic Research Service in the Department of Agriculture). Once established, many statistical agencies engage in all these functions to varying degrees.

One reason for establishing a separate statistical agency, rather than leaving statistical data compilation and dissemination activities as a part of a larger administrative operation, is to emphasize the principles and qualities of an effective statistical agency, for example, professional standards and confidentiality, as well as consistency of classifications or breadth of coverage. Another reason is to encourage research and the development of new information in a particular area of public

interest. Statistical agencies disseminate data for statistical purposes, not for administrative, regulatory or enforcement uses.

This definition of a federal statistical agency does not include many statistical activities of the federal government because they are not performed by distinct units or because they do not result in the dissemination of statistics to others - for example, statistics compiled by the Postal Service to set rates or by the Department of Defense to test weapons. Nor are agencies whose primary functions are the conduct or support of research included, although much of the research may be based on information gathered by statistical means, for example, in national laboratories.

Finally, although many statistical agencies perform some policy analysis functions for their departments, units whose primary function is policy analysis (e.g., Office of Tax Analysis in Treasury, Office of the Assistant Secretary for Planning and Evaluation in the Department of Health and Human Services) are not usually considered statistical agencies. As pointed out below, it is important to statistical agencies to be considered policy neutral. The dividing line between statistical projections and policy analysis is a narrow one, and different administrators exercise individual judgment in setting it.

Our definition of a federal statistical agency is narrower than that used in the report A Framework for Planning U.S. Federal Statistics for the 1980's (U.S. Department of Commerce, 1978), in which many statistical activities performed by units that are not distinct entities are included. The report classified 38 agencies into five groupings (agencies are listed by current titles, not 1978 titles):

General Coordination Agency

- Office of Statistical Policy in the Office of Information and Regulatory Affairs, Office of Management and Budget

Core Multipurpose Collection Agencies

- Bureau of the Census, Department of Commerce
- Bureau of Labor Statistics, Department of Labor
- National Agricultural Statistics Service, Department of Agriculture

Subject Matter Multipurpose Collection Agencies

- Bureau of Justice Statistics, Department of Justice
- Bureau of Mines, Department of the Interior
- Employment and Training Administration, Department of Labor
- Energy Information Administration, Department of Energy
- Environmental Protection Agency
- Federal Bureau of Investigation, Department of Justice
- Internal Revenue Service, Department of the Treasury
- National Center for Education Statistics, Department of Education
- National Center for Health Statistics, Department of Health and Human Services
- Office of the Assistant Secretary for Policy Development and Research, Department of Housing and Urban Development

Core Multipurpose Analysis Agencies

- Bureau of Economic Analysis, Department of Commerce
- Economics units in the Department of Agriculture
- Federal Reserve Board

- Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services
- Office of Research and Statistics, Social Security Administration, Department of Health and Human Services
- Research and Special Programs Administration, Department of Transportation

Program Collection and Analysis Agencies

Nineteen additional agencies with statistical activities were listed, but specific units were not identified. These agencies ranged from the Alcohol Drug Abuse and Mental Health Administration to the Veterans Administration.

Many of the considerations in our principles and practices may be pertinent to this larger list of agencies. Similarly, they may be relevant to statistical units in state and local agencies.

PRINCIPLES FOR A FEDERAL STATISTICAL AGENCY

A federal statistical agency must be in a position to provide information relevant to issues of public policy.

An agency not only supplies information for the use of immediate managers and policy makers in the executive branch and for legislative designers and overseers in Congress, but to all those who require statistical information on public issues, whether the information is needed for purposes of production, trade, consumption, or participation in civic affairs. Just as a free enterprise economic system depends on the common availability of economic information to all participants, a viable, democratic social system depends on wide access to information on education, health, transportation, the economy, the environment, criminal justice, and other social concerns.

Federal statistical agencies are responsible for providing statistics on conditions in a variety of fields. The resulting information is used both within and outside the government itself, not only to delineate problems and, sometimes, to suggest courses of action, but also to evaluate the results of government activity or lack of activity. The statistics provide much of the basis on which the government itself is judged. Federal statistical agencies should strive to meet the heavy responsibility for impartiality and objectivity that this role places on them.

Federal statistical agencies usually are in touch with the primary users in their own departments. Considerable energy and initiative are required to open avenues of communication more broadly to other potential users. Advisory committees representing major users are frequently used and are recommended as a means to obtain users' views (see, for example, Committee on National Statistics, 1982).

One frequently recommended method for alerting statistical agencies to emerging statistical needs is for the agency's own staff to engage in analysis (Norwood, 1975, Martin, 1981, and Triplett, 1991). Such in-house analysis can lead to suggested improvements in the statistics, to identification of new needs, to a reordering of priorities, and to closer cooperation and mutual understanding with policy analysis units. In its work for a policy analysis unit, a statistical agency describes conditions and possibly evaluates progress, but it refrains from making policy recommendations.

The line at which statistical analysis should stop and policy analysis start is a fine one that different statistical agency heads may handle somewhat differently.

A federal statistical agency must have a relationship of mutual respect and trust with those who use its data and information.

Users of an agency's data must perceive the agency as impartial, relevant, and reliable. Every effort should be devoted to providing credible statistics that will permit policy debates to be concerned about policy, not about the credibility of the data. A federal statistical agency must have a relationship of mutual respect and trust with respondents who provide data and all data subjects whose information it obtains.

The statistics program of the federal government relies in large part on information supplied by individuals and organizations outside the federal government - states and local governments, businesses and other organizations, and individuals. Some of this information is required by law or regulation (notably, tax returns), some is related to administration of government programs (such as applications for social security), but much of it is obtained through the voluntary cooperation of respondents in statistical surveys. Even when response is mandatory, the cooperation of respondents reduces costs and probably promotes accuracy. An important element in encouraging such cooperation is the perception by respondents that the data requested are important and that the information to be compiled from them will be reasonably accurate and unbiased.

In brief, the trust and credibility of a statistical agency must be maintained. It must not be perceived as being swayed by partisan politics. It must be perceived as working in the national interest, not the interest of a particular administration. It must be given credit for taking a long view - yet balancing new needs against the need for consistency with the past data (Ryten, 1990). Respondent trust also depends on honoring promises of confidentiality. Data providers should not be given stronger promises of confidentiality than an agency can reasonably expect to honor.

PRACTICES FOR A FEDERAL STATISTICAL AGENCY

A Clearly Defined and Well-Accepted Mission

A clearly defined and well-accepted mission is essential (see, e.g., Levine, 1986). Some agency missions are clearly spelled out in legislation; other agencies have only very general legislative authority. On occasion, very specific requirements may be set by legislation or regulation. A clear understanding of the mission of an agency, the scope of its program, and its authority and responsibilities, is basic to planning its program and evaluating results. In addition, considerable and formal attention must be paid to setting statistical priorities (Committee on National Statistics, 1976). A strong research program in the agency's subject matter field can assist in setting priorities (Triplett, 1991).

Advice from outside groups should be sought on the agency's statistical program, on setting statistical priorities, on the statistical methods used, and on data products. Such advice may be sought in a variety of formal and informal ways, but it should be obtained from data users and providers as well as professional or technical persons in the subject-matter area and in statistical methodology.

A Strong Measure of Independence

Statistical agencies produce the information by which present conditions are analyzed, comparisons with the past are made, and plans for the future will be guided. A statistical agency must be in a position to provide credible information that may be used to evaluate the program and policies of its own department or the government as a whole. The basic independence of a statistical agency is essential.

Some limitations on independence are common. In addition to the fact that legislative authority usually gives ultimate responsibility to the department rather than the statistical agency head, an agency is subject to the normal budgetary processes and to various coordinating and review functions of OMB, as well as the oversight, informal guidance, and legislative mandates of the Congress.

A statistical agency is thus in a continual state of tension between the need for close relations with user groups, including those that may be perceived as having partisan interests, and the need to maintain its credibility as an impartial purveyor of information. In the long run, the effectiveness of an agency depends on its maintaining a reputation for impartiality; thus, an agency must be continually alert to possible infringements on its credibility and be prepared to argue strenuously against such infringements.

Independence of an agency head is encouraged when the head is appointed by the President with approval by the Senate. Examples are the Bureau of the Census, the Bureau of Justice Statistics, and the Energy Information Administration. A further safeguard is provided when such a head is appointed for a fixed term, as is the case with the Bureau of Labor Statistics and the National Center for Education Statistics. It is desirable that the term not coincide with the presidential term so that incumbents need not resign with changes of administration and professional considerations may more easily predominate over political aims in the appointment process. Control over personnel actions, especially the selection and appointment of professional staff, including senior executive career staff, is also an aspect of independence.

Professional qualifications are of the utmost importance for statistical agency heads, whether the profession be that of statistician or the subject-matter field of the statistical agency. In either case, interest in the compilation and use of quantitative data should be a major element. The American Statistical Association has a committee that calls attention to the desirability of such professional appointments to each incoming administration and stands ready to assist in developing a list of suitable candidates on request.

Authority to decide the scope and content of the data collected or compiled is an important element of independence. Most statistical agencies have broad authority, but it is limited by budgetary constraints, departmental interest, OMB review, and congressional mandates. The courts sometimes become involved in a number of confidentiality and freedom of information issues, and in the issue of adjusting the census.

The budgetary constraints and OMB review are systematic; the other pressures depend, in part at least, on the relations between a statistical agency and those who have supervisory or oversight functions. Although it is standard practice for the head of the department or the head of the independent agency to have ultimate responsibility for all matters within the department or agency, it is desirable for the

head of a statistical agency to be allowed full authority in professional and technical matters. Congress frequently specifies particular data that it wishes collected (e.g., by the National Agricultural Statistics Service in the Department of Agriculture or Human Services) and, in the case of the decennial census, requires an opportunity to review the proposed questions before the forms are printed. The Office of Information and Regulatory Affairs, of the Office of Management and Budget, under the Federal Paperwork Reduction Act (and under the preceding Federal Reports Act) has the responsibility for designating a single data collection instrument for information wanted by two or more agencies.

Fair Treatment of Data Providers

Data providers are promised confidentiality in many statistical data collection programs. Confidentiality is considered essential as a basis for encouraging high response rates and accuracy of response. Some agencies have legislative mandates supporting promises of confidentiality; others rely on custom or strong statements of policy. The latter agencies risk their policies being overturned by judicial interpretations of legislation or executive decisions that may require the agency to disclose, for a nonstatistical purpose, data collected under a pledge of confidentiality. Agencies in that category should be especially careful not to give data providers stronger promises of confidentiality than they can reasonably expect to honor. It is important to tell data providers, when they are asked to participate in a survey, how the data will be used and who will have access to the data, to promote trust and encourage accurate response and, in the case of voluntary surveys, to permit informed decisions on participation.

The heads of statistical agencies must be prepared to deal with requests from other programs in their own department or agency, from other agencies and organizations, or from the courts wanting to use individually identifiable data for nonstatistical purposes. When such uses would be contrary to confidentiality pledges to data providers, agency heads should do everything in their power to deny access to the data. In all such circumstances, agencies must be prepared to stand firm and to justify the importance of confidentiality in maintaining credibility and trust with the public, in particular with data providers, and therefore in maintaining the future quality and credibility of their statistics.

Statistical agencies devote much time and effort to avoid inadvertent disclosure of confidential information in disseminating data. Risks are increased when data are tabulated for small groups, when the same data are tabulated in a variety of ways, or when detailed public-use microdata files (samples of records for unidentified individuals or units) are released. Because of the disclosure risks associated with detailed tabulations and public use microdata files, there is always a tension between the desire to safeguard confidentiality and the desire to provide broader public access to data. This dilemma is an important one to federal statistical agencies, and it has stimulated ongoing efforts to develop new statistical and administrative procedures to safeguard confidentiality while permitting more extensive access. An effective federal statistical agency will exercise judgment in determining which of these procedures are best suited to its requirements to serve data users while protecting confidentiality. (For discussion of these issues, see the forthcoming report of the Panel on Confidentiality and Data Access {Duncan et al., 1993}.)

Respondents invest time and effort in replying to surveys. The amount of effort varies considerably in accordance with the subject matter and with the complexity of the records that may have to be consulted, and possibly reclassified. Statistical agencies

should attempt to minimize such effort, when possible, by using alternative sources such as administrative records, by using concepts and definitions that fit common understanding and practice, and by simplifying questionnaires. Respondents should be informed of the length and duration of a survey, particularly when they are asked to cooperate in extensive interviews or record searches or in longitudinal surveys.

Advice from respondents is frequently sought through committees, surveys, or focus group discussions. Recently, work has been undertaken in several agencies to apply the principles of cognitive psychology to questionnaire design, not only to make the resulting data more accurate, but also to make the time and effort of respondents more efficient (Jabine et al., 1984). Some agencies attempt to thank respondents for their cooperation by providing them with brief summaries of the information after the survey is compiled.

Respondents usually reply to statistical surveys because they have been persuaded that their answers will be useful to the government or to society generally. Statistical agencies should respect this contribution by compiling the data and making it accessible to users in convenient forms. A statistical agency has an obligation to publish statistical information from the data it has collected unless it finds the results invalid.

Cooperation with Data Users

Federal statistics agencies deal with a wide spectrum of users both within and outside the federal government - including policy makers, planners, administrators, researchers, activists, citizens, students, and media representatives.

Needs of users can be explored informally, by forming advisory committees or by undertaking formal surveys. The task is difficult and requires continual alertness to the changing needs of users and the existence of potential users. The agency should engage in scientific cooperation with professional associations, institutes, universities, and scholars in the relevant fields to determine the needs of the research community and insight on potential uses.

Within the limitations of its confidentiality procedures as noted above, an agency should seek to provide maximum access to its data. An agency should strive to make data available to external researchers for secondary analysis (Fienberg et al., 1985). Once statistical data are made public, they may be used in numerous ways not envisaged in the original intent. An agency should be aware of the uses made of its data. Assuring equal access requires avoiding premature release of data to selected individuals, organizations, or news media. Agencies that prepare special tabulations of their data on request for external groups must be alert to the proposed uses. If the data are to be used in court cases, administrative proceedings, or collective bargaining negotiations, it is wise to have a known policy ensuring that both sides receive the special tabulations, regardless of which side requested them or paid the cost of the tabulation.

Openness About the Data Provided

One important criterion to instill credibility and trust among data users and data providers is for an agency to operate in a completely open manner. Openness requires providing a full description of its data with acknowledgment of any uncertainty in the data and a description of the methods used and assumptions made. Agencies should provide to users reliable indications of the kinds and amounts

of error to which the statistics are subject (President's Commission on Federal Statistics, 1971). Some statistical agencies have developed "quality profiles" for some of their major series. These have proved helpful to experienced users. Much more than estimates of sampling error is required. In addition to a discussion of aspects that statisticians recognize as nonsampling errors, a description of the concepts used and how they relate to the major uses of the data is desirable. Openness also means that the agency describe how decisions on methodology and procedures are made. It is important to be open about research conducted on methods and data and other factors weighed in the decision.

In brief, an effort should be made to describe the uncertainty surrounding the data as frankly as possible. Information on quality and use may have to be provided at several levels of technical detail and with a recognition that many lay people think of statistics as a simple process of counting and that any "error" means that someone made a mistake.

Commitment to Quality and Professional Standards

The best guarantee of high-quality results is a strong professional staff that combines experts in the subject-matter fields covered by the agency's program and experts in statistical methods and techniques. A major function of an agency's managers is to strike a balance among those two groups and promote working relationships that make the agency's program as productive as possible, with each group of experts contributing to the work of the other. Managers must be prepared to resolve fundamental differences of opinion along the way, but they should charge professionals with responsibility and authority for developing and promulgating statistical standards.

An effective statistical agency keeps up to date on developments in statistical theory or practice that might be relevant to its program. It must also be alert to changes in the economy or in society that may call for changes in the concepts or methods used in particular data sets. Often the need for change conflicts with the need for comparability with the past data series and this issue may dominate consideration of proposals for change.

Wide Dissemination of Data

A dissemination program should be planned to be of maximum use to the users. As noted above, it is essential to understand the various major uses of an agency's data. Planning should be undertaken from the viewpoint that the public has contributed the data elements, has paid for the data collection and compilation, and should, in return, have access to the information in a form as useful as possible.

A good dissemination program involves not only reaching the potential users of the information, but also presenting the data in a form suitable for their needs. On occasion, conflicts will arise between the objective of presenting the most accurate data possible and the desires of users for prompt release or for current data in terms that are consistent with past data. The tension between frequency and promptness of release on the one hand and accuracy on the other should be explicitly considered. Consideration should also be given to the frequency and mode of presentation of revisions and the mode of presentation of revised figures from the point of view of the users as well as the issuers of the data.

An Active Research Program

Substantive Research and Analysis

There are several strong arguments in support of the desirability of a statistical agency's substantively analyzing the data it compiles:

- The agency's analysts understand the need for and purposes of the data and know how the statistics will be used. Such information must be available and understood thoroughly if the survey design is to produce the data required.
- Those involved in analysis can best articulate the concepts that should form the basic framework of a statistical series. Agency analysts are well situated to understand and transmit the needs of external users and researchers; at the same time, close working relationships between analysts and data producers are needed for the translation of the conceptual framework into the design and operation of the survey.
- The closer analysts are to the micro data, the better is their knowledge of conditions limiting the interpretation of the data. Statistical agencies are impartial and, as such, are in a good position to present objective analysis.
 - * Substantive research by analysts on an agency's staff will assist in formulating the agency's program, and suggesting changes in priorities, concepts, and needs for new data or discontinuance of outmoded or little used series.

These issues are discussed in Norwood (1975), Martin (1981), and Triplett (1991).

Methodological Research

Methodological research may be directed toward improving survey design, reducing or measuring error, making data collection, compilation and dissemination processes more efficient, reducing the time and effort asked of respondents, or developing new and improved summary measures and estimation techniques. The Bureau of the Census is well known for its contributions to the theory of area sampling and the application of the theory in the first continuous probability sample of households. Federal statistical agencies, frequently in partnership with academic researchers, have also pioneered the national economic accounts, input-output models, microsimulation techniques, and similar analytic methods. Research on data collection, compilation, and dissemination processes continues to lead to the development and application of automated equipment. Several federal statistical agencies are now sponsoring research using principles of cognitive psychology to improve the design of questionnaires. Such research has been furthered by interactions between statistical agencies and the academic community.

Research on Policy Uses

Much more needs to be known on how statistics are actually used in the policy-making process, both within and outside the government. Research on how information produced by an agency is used in practice should contribute to future improvements in design, concepts, and format. Such research might examine the use of data in microsimulation or other economic models, for example, or it might be broader and examine decision-making processes themselves. Gaining an understanding of the variety of uses and users of an agency's data is only a first step

in this direction. For example, public-use microtapes of statistical data were developed in response to the growing needs of policy analysts and other researchers.

Professional Advancement of Staff

An effective federal statistical agency requires a strong professional staff, experts in the subject matter as well as statisticians. An agency should encourage high performance by adopting personnel policies designed for recruiting, developing, and retaining such a staff. There are several key elements of such a policy:

- The level of required and available technical and professional qualifications are identified. It is a sound policy to adhere to the requirements of professional qualifications for some important positions.
- Continuing education and training of staff is provided by sponsoring in-house training programs and providing opportunities for external education.
- Professional activities, such as publications in refereed journals and presentations at conferences, are encouraged. Participation in relevant statistical and other scientific associations is encouraged to promote interactions with academic researchers and other data users.
- Interaction with other professionals is increased through supervision of contract research and through a fellowship program of visiting researchers, and exchange of staff with relevant statistical, policy, or research organizations.
- Accomplishment is rewarded by appropriate recognition and by affording opportunity for further professional development.

Caution in Conducting Nonstatistical Activities

An agency may choose to or may be called upon to provide information, such as a list of organizations, that can be used for nonstatistical purposes. The National Center for Health Statistics, for example, makes public its lists of nursing homes. Respondents to the nursing home surveys are told, however, that their basic identification information will be made public. In addition to informing respondents, the agency should consider what effects public awareness and perception of its participation in such nonstatistical activities might have. Would the agency's credibility with data providers and data users be compromised? When measures of quality are included in a list, it may be questionable to provide the information.

Coordination with Other Statistical Agencies

Statistical agencies do not conduct their activities in isolation. They must be alert not only to exterior needs for their data, but also to potential exterior sources of data and of improved methods. An effective statistical agency will also be alert to occasions in which it can provide technical assistance to others.

The responsibility for coordinating statistical work in the federal government is specifically assigned to the office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget by the Paperwork Reduction Act (previously, the Federal Reports Act and the Budget and Accounting Procedures Act). Some functions are undertaken by OIRA desk officers, others by the Statistical Policy Office. Under the Paperwork Reduction Act, OIRA desk officers review proposed data collection instruments. The Statistical Policy Office, generally working with the assistance of interagency committees, issues statistical standards; reviews concepts of interest to more than one agency; publishes classification systems for general use

(of industries, occupations, standard metropolitan areas, etc.); consults with other parts of OMB on statistical budgets; and, by reviewing the statistical program of the government as a whole, identifies gaps in statistical data.

The Statistical Policy Office encourages the use of administrative data for statistical purposes, when feasible, and works to establish common goals and norms on major statistical issues, such as confidentiality. It sponsors and heads the interagency Federal Committee on Statistical Methodology, which issues guidelines and recommendations on statistical issues common to a number of agencies (U.S. Office of Management and Budget, 1983-1991). It has encouraged the Committee on National Statistics as an independent adviser and reviewer of federal statistical activities.

An effective statistical agency will engage wholeheartedly in coordinating activities relevant to its program. Use of standard classifications promotes concordance of statistics, as does the development of broad macro models, such as the system of national accounts. Data comparability and linkages can also be encouraged by less formal mechanisms, particularly by interagency committees dealing with specific topics, such as the former Labor Supply, Employment and Unemployment Committee and the current Forum on Aging-Related Statistics. There are other forms of interdepartmental cooperation and coordination, many bilateral, some resulting from common interests in specific subject areas, such as economic statistics and statistics on people with disabilities. (See U.S. Office of Management and Budget, 1991, for a description of agency reimbursements for statistical activities and purchases of statistical services.)

A common type of link between agencies is the agreement of an administrative agency to provide administrative data to a statistical agency to be used as a sampling frame, a source of classification information, or a summary compilation to check (and possibly revise) preliminary sample results. The Bureau of Labor Statistics, for example, benchmarks its monthly establishment employment reports to data supplied by state employment security agencies. Such practices improve statistical estimates, reduce costs, and eliminate duplicate requests for information from the same respondents. In other cases, federal statistical agencies engage in cooperative data collection with state counterparts to let one collection system satisfy the needs of both. A number of such joint systems have been developed, notably by the Bureau of Labor Statistics, the National Agricultural Statistics Service, the National Center for Education Statistics, and the National Center for Health Statistics.

Another example of a joint arrangement is the case in which one statistical agency contracts with another to conduct a survey, compile special tabulations, or develop models. Such arrangements make use of the special skills of the supplying agency and are responsive to pressures to use common concepts and methods. The Bureau of the Census conducts many surveys for other agencies, as do the Bureau of Labor Statistics and the National Center for Health Statistics.

The major federal statistics agencies are also concerned with international comparability of statistics. They contribute to the deliberations of the U.N. Statistics Commission and other international organizations, participate in the development of international standard classifications and systems, and support educational activities that promote improved statistics in developing countries. Several statistical agencies run educational programs for statisticians on the staffs of developing countries. Some statistical agencies have had long-term cooperative relationships with other international groups, for example, the Bureau of Labor Statistics with the International

Labor Organization, the National Agricultural Statistics Service with the Food and Agriculture Organization, and the National Center for Health Statistics with the World Health Organization.

ESTABLISHMENT OF FEDERAL STATISTICAL AGENCY

The United States collected and published statistics long before any distinct statistical agency was formed. Congress has sometimes legislated specific data collection or analysis activities, but frequently the organic act that authorizes a statistical agency is very general. The decennial census was originally collected by U.S. marshals as just one of their many duties. The first U.S. statistical agency was the Bureau of Labor (forerunner of the Bureau of Labor Statistics in the Department of Labor); the second was the Bureau of the Census. In the first case, a widespread public demand for information on the condition of industrial workers led to the formation of the bureau with only very general guidance on what its specific statistical functions were to be. In the second case, the Bureau of the Census inherited specific major statistical duties, formerly undertaken by others, around which other major statistical undertakings later grew. The Bureau of Agricultural Economics (forerunner of the National Agricultural Statistics Service and the Economic Research Service) was another early statistical agency.

Two world wars and the Great Depression led to considerably more emphasis on the need for statistics for decision making both within and outside the federal government, and the number of statistical agencies burgeoned. Some of these were analytic agencies; others were agencies concerned with a specific subject, such as the National Center for Education Statistics and the National Center for Health Statistics. In either case, the agency itself, in consultation with perceived potential users of its information, has major responsibility for determining its specific statistical program and for setting priorities. Initially, many of these agencies also had responsibilities for certain policy analysis functions for their department heads. More recently, policy analysis has generally been located in separate units that are not themselves considered to be statistical agencies.

A statistical agency has at least two roles: (1) provider of the statistical information and analysis needed for policy and program administration by its own department and (2) source of national statistics in its area of concern for the public. It is sometimes difficult to keep these two roles distinct on policy-relevant statistics. An effective statistical agency, nevertheless, will frequently play a creative, not just reactive role, in the development of data needed for policy analysis. Sometimes federal statistical agencies play a third role, that of monitor and consultant on statistical matters to other units within the same department (see e.g., Levine et al., 1985.)

There is no set rule or guideline for the establishment of a separate federal statistical agency in contrast to carrying on statistical activities within the operating units of departments and independent agencies or contracting for statistical services from existing federal statistical agencies or others.

Establishment of a federal statistical agency may be considered when one or more of the following conditions prevail:

- There is a need for information extending beyond the narrow scope of individual operating units and possibly involving other departments and

- agencies. Such needs may require coordinating data from various sources, initiating new series to fill gaps, or developing broadly applicable models.
- There is a need to establish confidentiality of reports by law or regulation covering a distinct organizational unit. When a separate statistics entity is established, statistical reports can be more easily identified and protected by law or regulation from administrative or regulatory use. The functional separation of statistical data, recommended by the Privacy Protection Study Commission (1977), is easier to maintain when the collection and compilation are conducted in a unit separate from operating units. At the same time, the expectation that confidentiality will be observed is likely to be enhanced.
 - There is a need to consolidate collection, compilation, analysis and dissemination of statistics in one unit to encourage high-quality performance, eliminate duplication, and streamline operations. There may be a need to develop a broad range of statistics to support a research and development effort in a major field of government activity or responsibility.

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