Statement of Commitment to Scientific Integrity

by Principal Statistical Agencies

Our Nation relies on the flow of objective, credible statistics to support the decisions of governments, businesses, households, and other organizations. Any loss of trust in the integrity of the Federal statistical system and its products can foster uncertainty about the validity of measures our Nation uses to monitor and assess performance and progress.

Federal statistical agencies (or units) whose principal function is the collection, analysis, and dissemination of information for statistical purposes have set for themselves a high standard of scientific integrity. The following agencies are designated as "principal statistical agencies[1]" **–**

Bureau of Economic Analysis (Commerce Department)
Bureau of Justice Statistics (Justice Department)
Bureau of Labor Statistics (Labor Department)
Bureau of Transportation Statistics (Transportation Department)
Census Bureau (Commerce Department)
Economic Research Service (Agriculture Department)
Energy Information Administration (Energy Department)
National Agricultural Statistics Service (Agriculture Department)
National Center for Education Statistics (Education Department)
National Center for Health Statistics (Health and Human Services Department)
National Center for Science and Engineering Statistics (National Science Foundation)
Office of Research, Evaluation, and Statistics (Social Security Administration)
Statistics of Income Division (Treasury Department)

These agencies embrace a common set of professional standards and operational practices designed to ensure the quality, integrity and credibility of their statistical activities. Implementation of these professional standards involves a wide range of managerial and technical challenges.

Principles and Practices of Statistical Agencies

To address these challenges, the National Research Council of the National Academies (NRC) has developed practical guidance in its publication, *Principles and Practices for a Federal Statistical Agency*[2].

[1]The Office of Management and Budget designates principal statistical agencies. The exact number of units considered principal statistical agencies has evolved over time. The most recent listing of such agencies is available in the Office of Management and Budget's *Statistical Programs of the United States Government*, available at: https://www.whitehouse.gov/omb/information-regulatory-affairs/statistical-programs-standards/

[2] National Research Council. Principles and Practices for a Federal Statistical Agency: Fourth Edition. Washington, DC: The National Academies Press, 2009. Available at: http://www.nap.edu/catalog.php?record_id=12564.

The principal statistical agencies use this volume to guide their strategic planning, daily operations, and interactions with stakeholders. The principal statistical agencies embrace the four fundamental principles articulated in the Fourth Edition:

> ***Principle 1:*** a Federal statistical agency must be in a position to provide objective information that is relevant to issues of public policy;
> ***Principle 2:*** a Federal statistical agency must have credibility with those who use its data and information;
> ***Principle 3:*** a Federal statistical agency must have the trust of those whose information it obtains; and
> ***Principle 4:*** a Federal statistical agency must have a strong position of independence within the government.

Actual and perceived violations of any of these principles undermine the scientific integrity of, and public confidence in, the data produced by principal statistical agencies. Of special note is the emphasis that the NRC publication places on the impartiality and independence of each statistical agency. The NRC discussion of independence includes the following.

- Independence must include separation of the statistical agency from the parts of its department that are responsible for policy-making or law enforcement activities.
- Independence must include control over personnel actions, especially the selection and appointment of qualified professional staff, including senior executive career staff.
- Independence must include the statistical agency having authority for professional decisions over the scope, content, and frequency of data collected; analysis, or publishing of the information; authority to release statistical information without prior clearance; and adherence to predetermined schedules for public release of statistical information.
- Independence must also include the statistical agency's ability to control information technology systems used in collection, storage and dissemination of statistical information, since such control is essential for ensuring adherence to laws and regulations requiring appropriate protection of data collected under a promise of confidentiality.

The principal statistical agencies also subscribe to the 11 practices identified by the NRC as critically important in the application of these principles:

> **Practice 1:** A Clearly Defined and Well-Accepted Mission;
> **Practice 2:** Continual Development of More Useful Data;
> **Practice 3:** Openness about Sources and Limitations of the Data Provided;
> **Practice 4:** Wide Dissemination of Data;
> **Practice 5**: Cooperation with Data Users;
> **Practice 6:** Fair Treatment of Data Providers;
> **Practice 7:** Commitment to Quality and Professional Standards of Practice;
> **Practice 8:** An Active Research Program;
> **Practice 9:** Professional Advancement of Staff;
> **Practice 10:** A Strong Internal and External Evaluation Program; and
> **Practice 11:** Coordination and Cooperation with Other Statistical Agencies.

All of these practices are important to achieving and safeguarding scientific integrity. Implementation details of these practices vary across agencies.

Statistical Policy Directives and Standards

The Principles and Practices are closely related to Statistical Policy Directives and other standards issued by the Office of Management and Budget (OMB) in its role as coordinator of the Federal statistical system (44 U.S.C. 3504(e). Specifically, OMB's directives and standards are designed to preserve and enhance the objectivity, utility, and transparency, in fact and in perception, of the statistical products themselves and the processes used to release and disseminate them. Examples include –

> **Statistical Policy Directive Number 3**[3], which is intended to preserve the time value of principal economic indicators, strike a balance between timeliness and accuracy, prevent early access to information that may affect financial and commodity markets, and preserve the distinction between the policy-neutral release of data by statistical agencies and their interpretation by policy officials.
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> **Statistical Policy Directive Number 4**[4], which enumerates procedures intended to ensure that statistical data releases adhere to data quality standards through equitable, policy-neutral, and timely release of information to the general public.
>
> **Standards and Guidelines for Statistical Surveys**[5], which documents important technical and managerial practices that Federal agencies are required to adhere to, and the level of quality and effort expected in all statistical activities to ensure consistency among and within statistical activities conducted across the Federal Government.

Information Quality Guidelines

The Principles and Practices are also related to the Information Quality Act[6], which requires OMB and all other Federal agencies to maximize the quality, objectivity, utility, and integrity of information, including statistical information, provided to the public. Through the adoption and implementation of the Government-wide Information Quality Guidelines[7], each statistical agency–

> maintains its commitment to using the best available science and statistical methods;
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> subjects information, models, and analytic results to independent peer review by qualified experts, when appropriate;

[3] https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/assets/OMB/inforeg/statpolicy/dir_3_fr_09251985.pdf; 38932 Federal Register / Vol. 50, No. 186 / Wednesday, September 25, 1985.

[4] https://www.gpo.gov/fdsys/pkg/FR-2008-03-07/html/E8-4570.htm; 12622 Federal Register / Vol. 73, No. 46 / Friday, March 7, 2008.

[5] https://www.gpo.gov/fdsys/pkg/FR-2006-09-22/pdf/06-8044.pdf; announced in 55522 Federal Register / Vol. 71, No. 184 / Friday September 22, 2006.

[6] Section 515 of the Treasury and General Government Appropriations Act, 2001 (Pub. L. No. 106-554, 44 U.S.C. § 3516 note).

[7] These guidelines are available at: https://www.archives.gov/federal-register/write/handbook.

disseminates its data and analytic products with a high degree of transparency about the data and methods to facilitate its reproducibility by qualified third parties; and

ensures that the presentation of information is comprehensive, informative, and understandable.

Using Best Scientific Methods to Ensure Data Quality and Integrity

Finally, scientific methods play a critical role in maximizing the quality, objectivity, and credibility of information collected and disseminated by the principal statistical agencies. Examples of the application of scientific methods include probability sampling designed to avoid biased samples and randomized assignment for assessing the impacts of alternative protocols or question wording. Measures need to be valid and reproducible, and interpreting variations in these measures across data sources requires scientific knowledge of their properties. Combining data from disparate sources, such as surveys and administrative records, is increasingly important given the growing reluctance of respondents to provide data in Federal data collection efforts. These efforts require statistical modeling, as does the provision of statistics on small areas where direct estimates from surveys may be subject to large sampling errors. The procedures, equations, and assumptions, which define these models, must be publicly available to ensure that the information is presented in an accurate, clear, complete, and unbiased manner. Moreover, Federal statistical agencies apply complex statistical methods to the information that is publicly released to protect the confidentiality of data about respondents to Federal surveys.

Methodological improvements and rigorous approaches to data collection and analysis require the application of scientific methods. Computer scientists, demographers, economists, geographers, mathematicians, survey statisticians, and other scientists are needed for producing high quality, objective statistics from surveys or administrative data. Subject area experts, such as epidemiologists and engineers, are also needed to maximize data quality. Research and methodological innovation are required to continuously improve the quality and scope of our data products while protecting privacy and ensuring confidentiality. All of the above mentioned factors are critically important to ensuring the credibility of Federal statistical agencies.

Conclusion

We reaffirm our commitment to maintaining the highest level of scientific integrity in producing official statistics. Together, the *Principles and Practices*, *Statistical Policy Directives and Standards*, and *Information Quality Guidelines* form the foundation for achieving and maintaining scientific integrity within and among the principal statistical agencies.