Recent Reports and Current Projects from the Committee on National Statistics

Committee on National Statistics

The National Academies of
SCIENCES · ENGINEERING · MEDICINE

Brian Harris-Kojetin, Ph.D. Director, CNSTAT
Council of Professional Associations on Federal Statistics
Washington, DC •March 1, 2019

U.S. National Academy of Sciences Charter (1863)

"The academy shall, whenever called upon by any department of the government, investigate, examine… and report upon any subject of science or art …"

The National Academies Provide Independent, Objective Advice from Experts

- Non-profit, 501 c(3) organization

- Academies members and distinguished **volunteers** serve on ad hoc panels and standing bodies such as CNSTAT

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The Committee on National Statistics

- Established in 1972 as a standing unit of the National Academies on the recommendation of the President's Commission on Federal Statistics to provide an independent, objective resource for evaluation and improvement of federal statistical methods and operations.

- CNSTAT's mission is to improve the statistical methods and information on which public policy decisions are based. It also serves as a coordinating force in the highly decentralized U.S. federal statistical system.

- Over its 46-year history, CNSTAT has produced over 270 consensus, interim, letter, and workshop reports.

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Who Serves on CNSTAT?

Robert Groves (*chair*), Math/Statistics

Mary Ellen Bock, Math/Statistics

Anne C. Case, Health Economics

Michael Chernew, Health Economics

Janet Currie, Welfare Economics

Don Dillman, Survey Research

Diana Farrell, Private Sector Data

Daniel Kifer, Computer Science

Tom Mesenbourg, Sr. Federal Statistics Management

Sarah Nusser, Survey Research

Colm O'Muircheartaigh, Survey Research

Jerome Reiter, Applied Statistics

Judith Seltzer, Sociology

C. Matthew Snipp, Demography

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Note: all members serve *pro bono*

CNSTAT Funding

- ***Agency contracts/grants*** fund individual projects
- ***Core support*** comes from over 20 agencies: AHRQ, ASPE, BEA, BJS, BLS, BTS, Census, CIS/DHS, EIA, ERS/USDA, FIA/FS, FNS, HUD, MMS/NSF, NASS, NCES, NCHS, NCSES/NSF, NIA, SOI/IRS, SSA/ORES, NCVAS/VA
  - to maintain CNSTAT and undertake cross-cutting activities
- THANK YOU!!!

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What Does CNSTAT Do?

- **Consensus panels (10-14 members)—**review data collection programs, entire agencies (Bureau of Justice Statistics, Census Economic Surveys, others), cross-cutting issues, key measures; issue reports with findings and recommendations; members are volunteers appointed by NAS president and supported by staff

- **Stand-alone workshops—**convening function, publish proceedings.

- **Other convening activities—**standing committees, planning meetings, seminars, etc.

The CNSTAT Portfolio

Principles and Practices for a Federal Statistical Agency –

Now in its 6th edition.
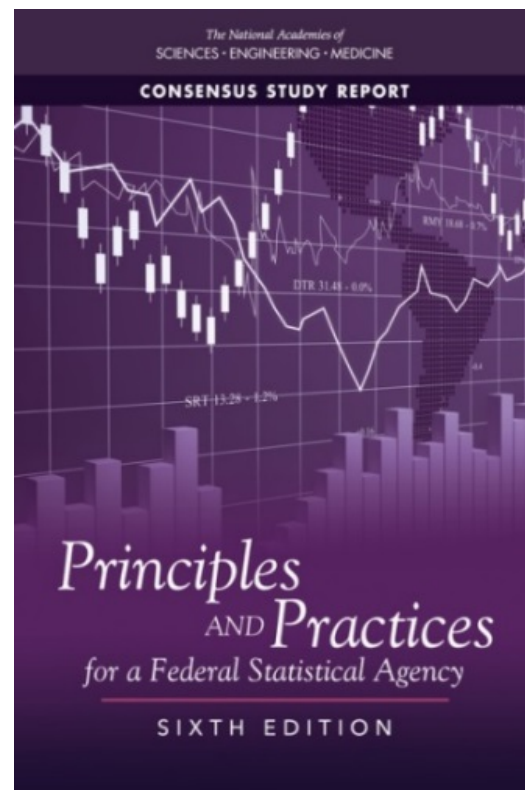
Principles

Relevance to Policy Issues A federal statistical agency must be in a position to provide objective, accurate, and timely information that is relevant to issues of public policy.

Credibility Among Data Users A federal statistical agency must have credibility with those who use its data and information.

Trust Among Data Providers A federal statistical agency must have the trust of those whose information it obtains.

Independence from Political and Other Undue External Influence A federal statistical agency must be independent from political and other undue external influence in developing, producing, and disseminating statistics.

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Thirteen Practices

1. A clearly defined and well-accepted mission
2. Necessary authority to protect independence
3. Use of multiple data sources for statistics that meet user needs
4. Openness about sources and limitations of the data provided
5. Wide dissemination of data
6. Cooperation with data users
7. Respect for the privacy and autonomy of data users
8. Protection of the confidentiality of data providers' information
9. Commitment to quality and professional standards of practice
10. An active research program
11. Professional advancement of staff
12. A strong internal and external evaluation program
13. Coordination and collaboration with other statistical agencies

Changes in the 6th Edition

- Document *reorganized* for ease of use, particularly on-line:

  o Executive Summary

  o Part I – Introduction: Background, Definition of a Federal Statistical Agency, Establishment of a Statistical Agency, Brief History of the U.S. Federal Statistical System, and new section on *Valuing Federal Statistics*

  o Part II – Principles (explication and commentary integrated)

  o Part III – Practices (explication and commentary integrated)

  o Updated appendixes on legislation/regulation and organization of the federal statistical system (available on-line only)

- On-line version includes extensive *hyperlinks*—from principles to pertinent practices, from body to appendixes, and from text to references

- Expanded section on renamed *Practice 3: Use of Multiple Data Sources for Data That Meet User Needs*
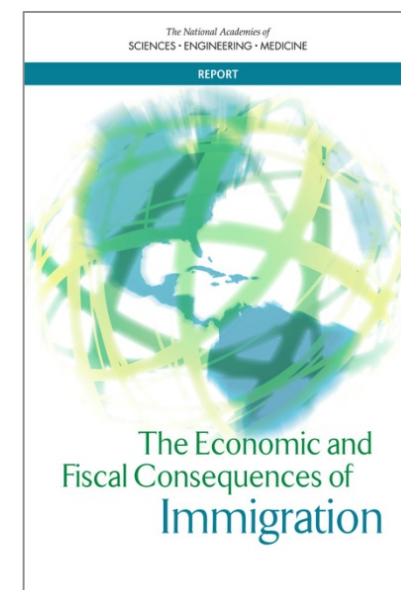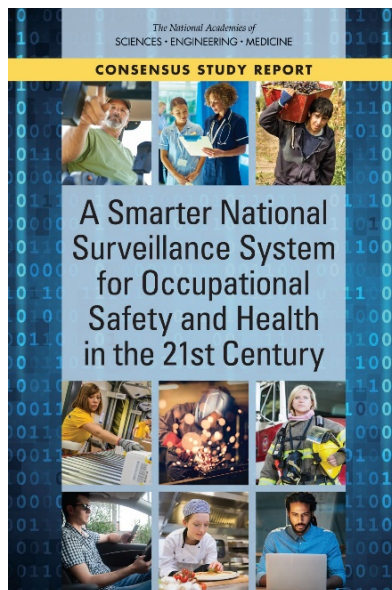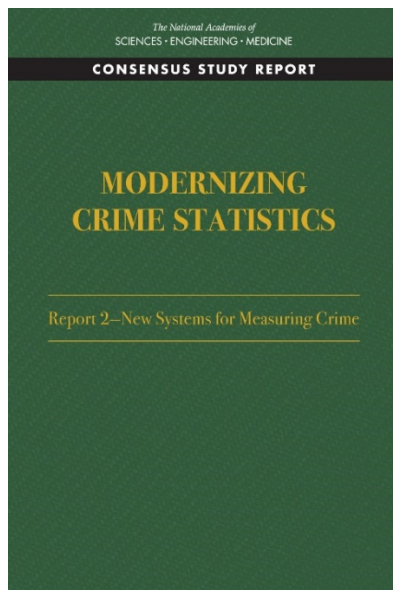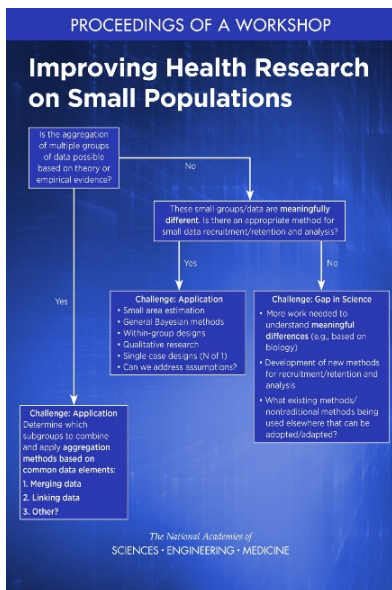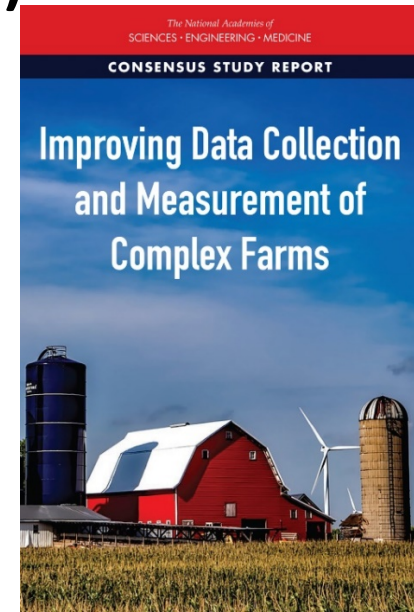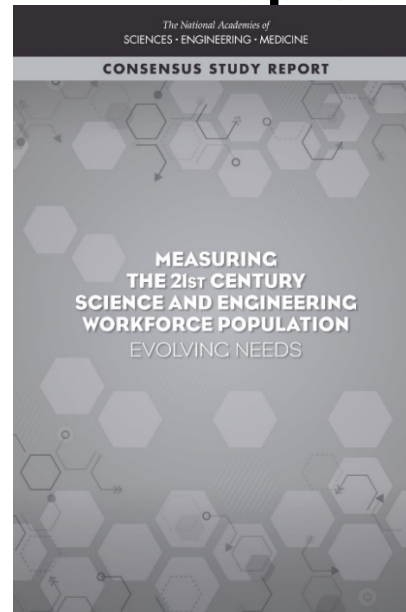
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Who Uses P&P?

- Federal statistical agencies to inform department officials, advisory committees, and others
- OMB has cited P&P in multiple Statistical Policy Directives
- U.S. GAO has cited P&P in many reports
- It informed the establishment and later assessment of BTS
- It has been cited in statistical agency head confirmation hearings
- Janet Norwood in her 1995 book, *Organizing to Count*
- The Board of the American Statistical Association has endorsed P&P.

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Sampling of Recent CNSTAT Studies
(all available at www.nap.edu)

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CONSENSUS STUDY REPORT

Reengineering the Census Bureau's Annual Economic Surveys

The National Academies of
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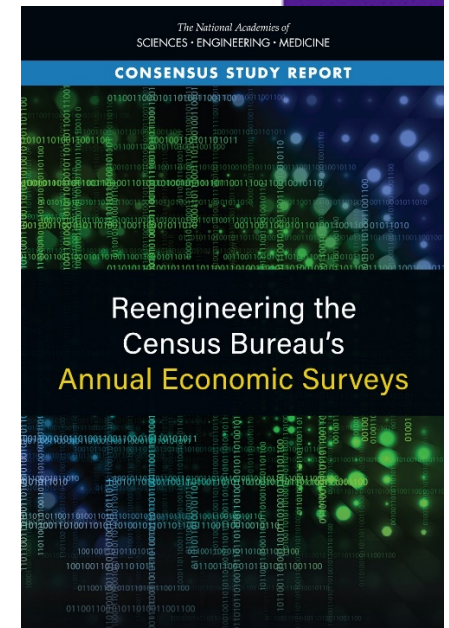
CONSENSUS STUDY REPORT

Principles AND *Practices* for a Federal Statistical Agency

SIXTH EDITION

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CONSENSUS STUDY REPORT

MEASURING THE 21st CENTURY SCIENCE AND ENGINEERING WORKFORCE POPULATION EVOLVING NEEDS

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CONSENSUS STUDY REPORT

Improving Data Collection and Measurement of Complex Farms

PROCEEDINGS OF A WORKSHOP

Improving Health Research on Small Populations

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CONSENSUS STUDY REPORT

MODERNIZING CRIME STATISTICS

Report 2—New Systems for Measuring Crime

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CONSENSUS STUDY REPORT

A Smarter National Surveillance System for Occupational Safety and Health in the 21st Century

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REPORT

The Economic and Fiscal Consequences of Immigration

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Reengineering the Census Bureau's Annual Economic Surveys

- *Charge: Review the design, operations and products of the Census Bureau's Annual Economic Surveys*

- RECOMMENDATION 8-1: …the Census Bureau should develop a detailed concept and implementation plan for an Annual Business Survey System (ABSS) to replace the current suite of largely separate annual economic surveys. An ABSS should

  – administer a core set of questions to all respondents, with modules containing industry-specific and topical questions;

  – use a rotating panel sample drawn from a redesigned comprehensive Business Register

  – use administrative records to the maximum extent possible; and

  – incorporate small-area models to produce subnational geographic estimates

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CONSENSUS STUDY REPORT

Reengineering the
Census Bureau's
Annual Economic Surveys

Reengineering the Census Bureau's Annual Economic Surveys

- Additional Recommendations to:
  - develop a process for regularly updating the data user community
  - establish a centralized and coordinated Account Manager Program
  - design access and retrieval mechanisms for data to be as straightforward as possible
  - follow best practices, such as permanent url addresses for datasets and documentation to facilitate the ability of users to access valuable historical information from the annual economic surveys

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Reengineering the
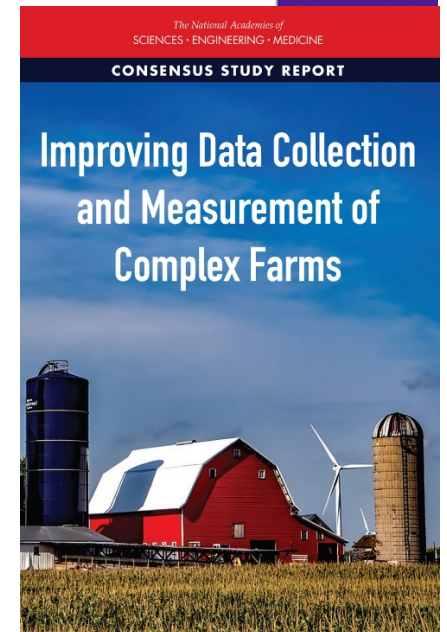Census Bureau's
Annual Economic Surveys
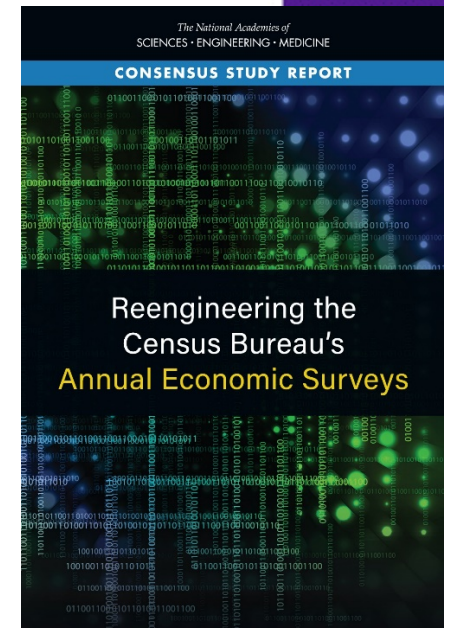
Improving Data Collection and Measurement of Complex Farms

- *Charge: Make recommendations to NASS and ERS on effective methods for collecting data and reporting information about American agriculture given the changes and increased complexity in farm business structure.*

- **Recommendation 5.1**: The U.S. Department of Agriculture should consider adopting definitions of (1) farm establishment as a business establishment engaged in farming and (2) farm business as a collection of business establishments with at least one farm establishment linked by common ownership or control.

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Improving Data Collection and Measurement of Complex Farms
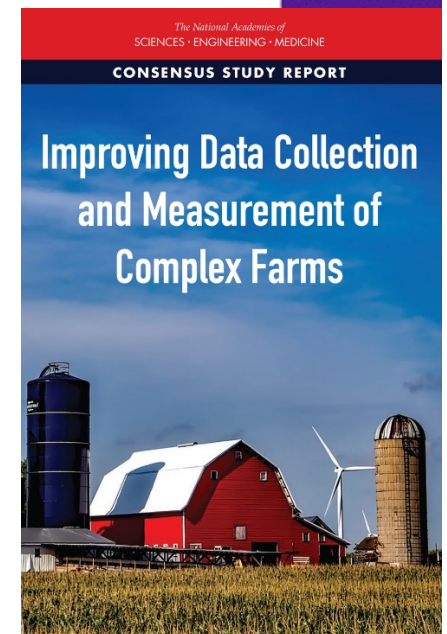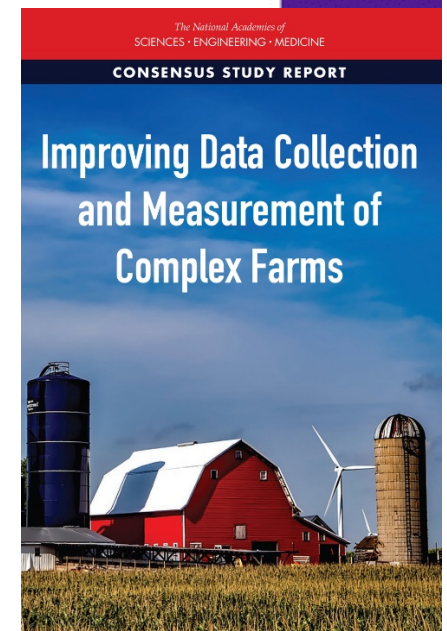
Improving Data Collection and Measurement of Complex Farms

- Additional Recommendations:
  - classifying a business as a farm or as an entity operating in a nonfarming sector with secondary activities in farming, based on the nature of the business's principal productive activities.
  - expand on its list frame to create a Farm Register that provides an ongoing enumeration of all farm establishments
  - create a separate list frame of farm households within the overall Farm Register that would lead to a more efficient sampling of farm households and/or persons involved in farm activities
  - the Farm Register should consist of a set of relational databases that include information on places and people and that identify households and businesses with suitable links between the two

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CONSENSUS STUDY REPORT
Improving Data Collection and Measurement of Complex Farms

Improving Data Collection and Measurement of Complex Farms

- Chapter 6. A Broader Data Infrastructure: Administrative and Other Nonsurvey Data
  - 6.1. Motivations for Pursuing Alternative Data Sources
  - 6.2. Benefits and Challenges of Using Administrative Data in Statistical Programs
  - 6.3. Current and Potential Future Use of Administrative Data by USDA
 - 6.4. The Essential Role of Data Linking

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CONSENSUS STUDY REPORT

Improving Data Collection and Measurement of Complex Farms

Measuring the 21st Century Science and Engineering Workforce Population: Evolving Needs

- *Charge: Review NCSES's approach to measuring the science and engineering (S&E) workforce population in the U.S.*

- **RECOMMENDATION 3-2:** NCSES should work toward survey design and questionnaire content that capture both the immigration of individuals from abroad into the U.S. S&E workforce and the emigration of individuals from the U.S to other countries

Measuring the 21st Century Science and Engineering Workforce Population: Evolving Needs
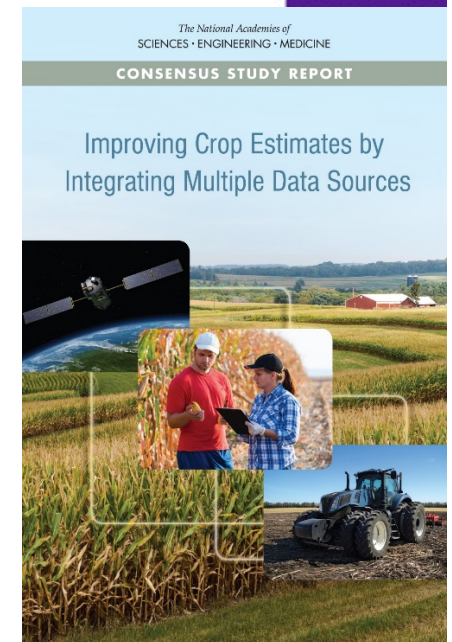
- Additional Recommendations:
  - assess the performance of the new questions on working condition**s** and work–life balance
  - develop core questions and a more in-depth module on harassment and discrimination.
 - make longitudinal survey data a priority
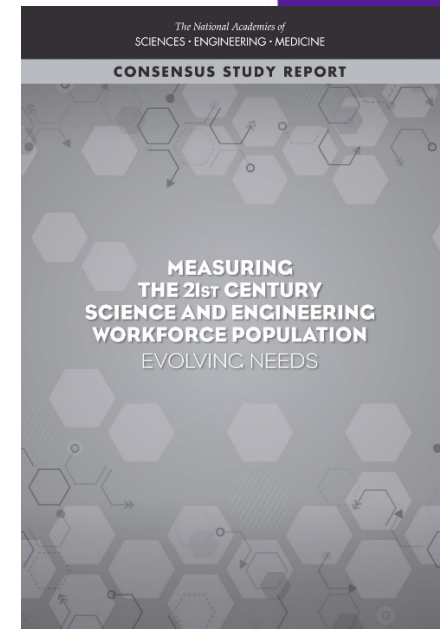
Improving Crop Estimates by Integrating Multiple Data Sources

- *Charge: review methods for integrating multiple data sources to improve NASS county-level crop estimates.*

- *Recommendation 2-2: NASS should achieve transparency and reproducibility by developing, evaluating, validating, documenting, and using model-based estimates that combine survey data with complementary data in accordance with OMB standards.*
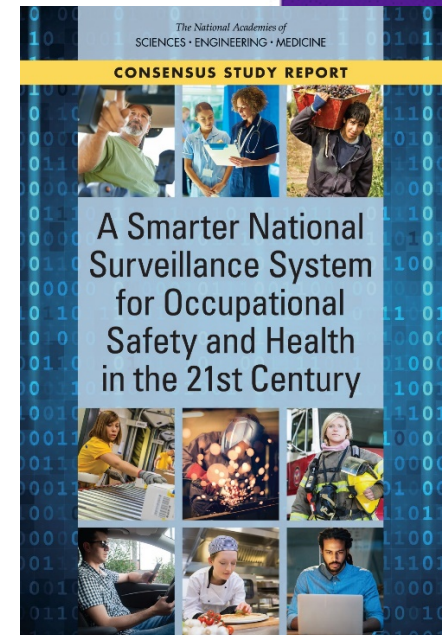
Improving Crop Estimates by Integrating Multiple Data Sources

- Additional Recommendations: *NASS should:*
  - *evolve the Agricultural Statistics Board role from one of integrating multiple data sources to one of reviewing model-based predictions; macro-editing; and ensuring the models are continually reviewed, assessed, and validated.*
  - *develop and publish uncertainty measures for county-level estimates.*
  - *Adopt the FSA's Common Land Unit as its basic spatial unit.*
  - *Collaborate with RMA to obtain relevant acreage and production data and conduct comparisons with NASS data*
  - *Develop a precision agriculture reporting option*

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Improving Crop Estimates by Integrating Multiple Data Sources
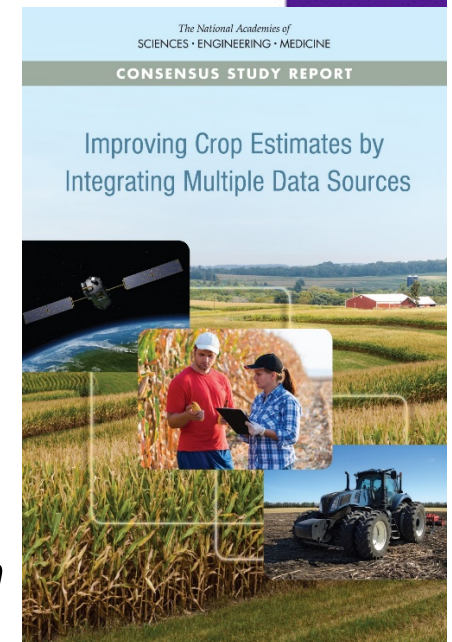
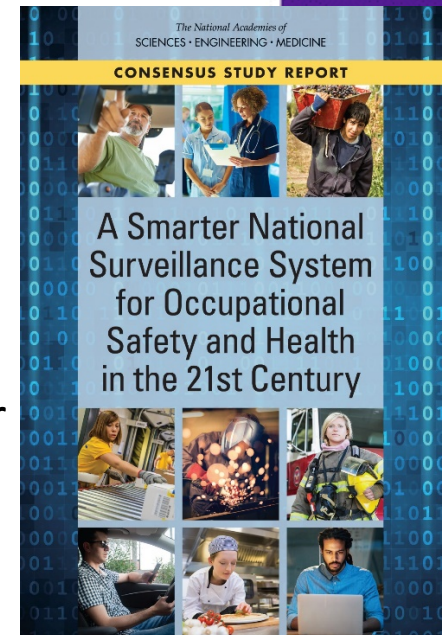# A Smarter National Surveillance System for Occupational Safety and Health

- *Charge: Develop a vision for a "smarter" cost-effective occupational safety and health surveillance system.*

- **Recommendation Q** (meta recommendation): The Secretary of HHS, with the support of the Secretary of Labor, should direct NIOSH to form and lead a coordinating entity in partnership with OSHA, BLS, and other relevant agencies to:

  - Develop a strategic plan

  - Coordinate the design and evaluation of a national evolving system of systems

  - Publish a progress report every 5 years

  - Engage partners and stakeholders

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A Smarter National Surveillance System for Occupational Safety and Health in the 21st Century

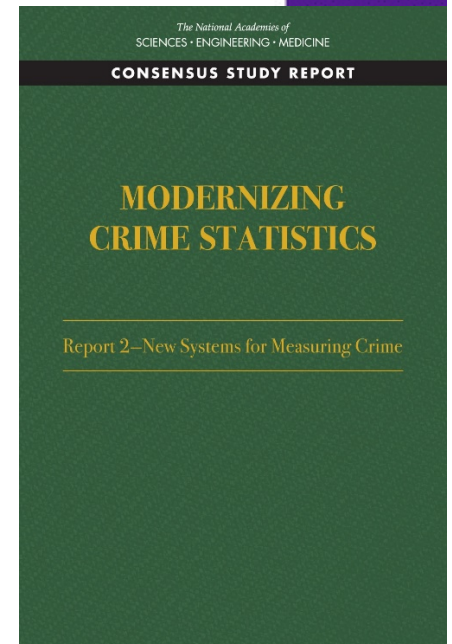# A Smarter National Surveillance System for Occupational Safety and Health

- *The system of systems will need to provide specific and clear-cut objectives for each of the surveillance systems and each of the key federal agencies*
  - *Needs to include detailed plans for engage of the state-based OSH system*
  - *Long-term objectives will require expanded data resources paired with improved methods for assessing burden*
- Additional Recommendations
  - NIOSH should lead efforts to establish data standards and software tools for using occupational data in EHRs
  - BLS and NIOSH should collaborate to enhance the SOII
  - BLS should place priority on implementing their plan for a Household Survey (HSOII)

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CONSENSUS STUDY REPORT

A Smarter National Surveillance System for Occupational Safety and Health in the 21st Century

Modernizing Crime Statistics: Report 2 - New Systems for Measuring Crime

- *Charge: Assess and make recommendations for the development of a modern set of crime measure in the U.S. and the best means for obtaining them.*

- Conclusions:
  - The aim of modern crime statistics is the effective measurement and estimation of crimes; expand to include more than simple tallies
  - There is a lack of solid information about the relative magnitude of costs, harms, or importance across crime offenses
  - Enhancements and expansions of the current data collections are required as well as new data collection systems for neglected crime types
  - A stronger federal coordination role is needed in the production of the nation's crime statistics.

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CONSENSUS STUDY REPORT

MODERNIZING
CRIME STATISTICS

Report 2—New Systems for Measuring Crime

Modernizing Crime Statistics: Report 2 - New Systems for Measuring Crime

- Recommendation: OMB should explore the range of coordination and governance processes for the complete U.S. crime statistics enterprise—including the "new" crime categories—and then establish such a structure. The structure must ensure that all component functions of generating crime statistics are conducted in concordance with the sensibilities, principles, and practices of a statistical agency.
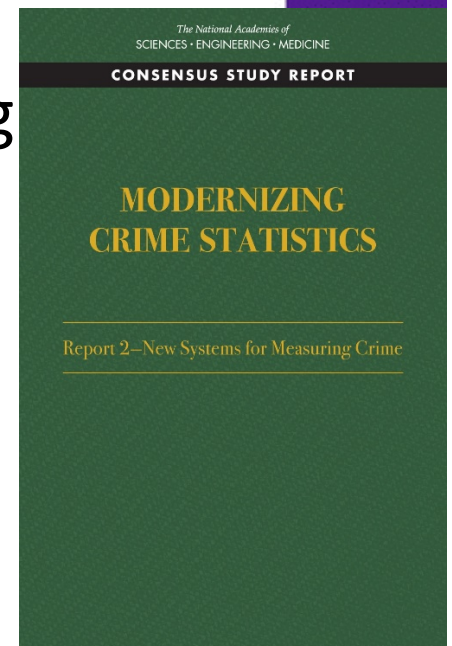
Other recent reports

- The Economic and Fiscal Consequences of Immigration
- Evaluation of the Achievement Levels for Mathematics and Reading Skills on the National Assessment of Educational Progress
- Improving Motor Carrier Safety Measurement
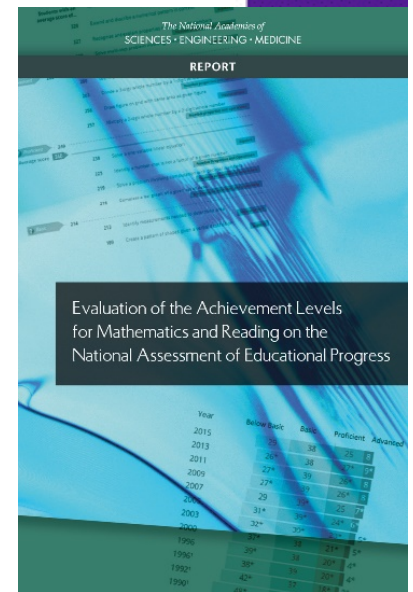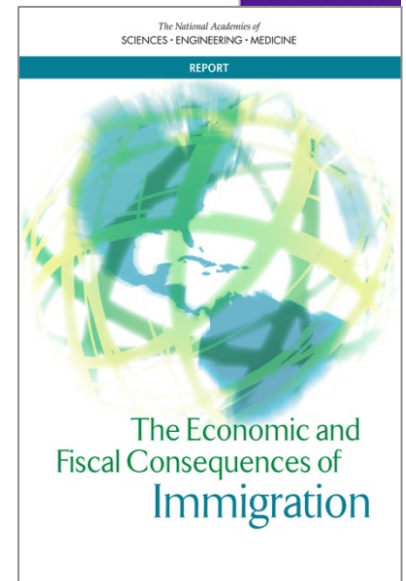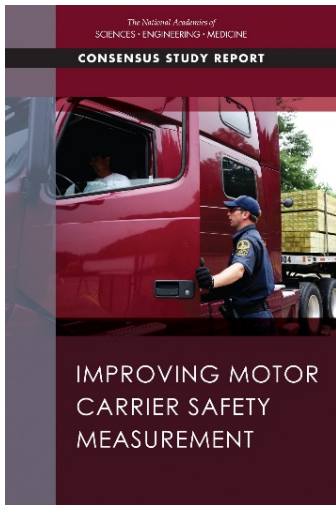
Workshop Proceedings

- Improving Health Research on Small Subpopulations

- Advancing Concepts and Models for Measuring Innovation: Proceedings of a Workshop

- Improving Data on Criminal Justice System Involvement in Population Health Data Collection: Proceedings of a Workshop

- Methods to Foster Transparency and Reproducibility of Federal Statistics: Proceedings of a Workshop

Improving Health Research on Small Subpopulations

- Presentations included:
  - *Feasibility of using EHRs*
  - *Geospatial methods*
  - *Probability sampling*
  - *Respondent-driven sampling*
  - *Venue-based and Online sampling*
  - *Quasi-experimental designs*
  - *Challenges with recruitment and retention*
  - *Research in rural areas*
  - *Using technology*
  - *Analysis techniques*
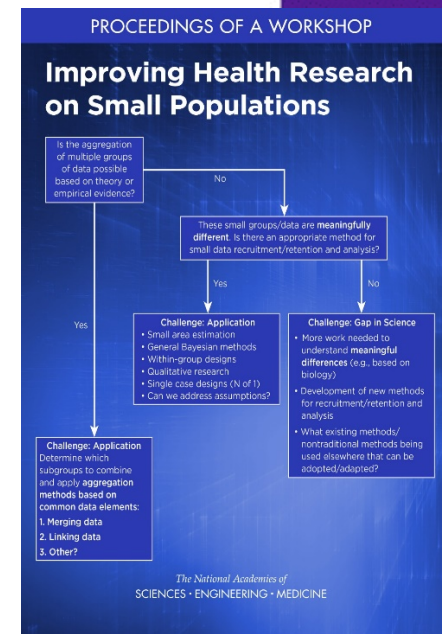
Advancing Concepts and Models for Measuring Innovation: Proceedings of a Workshop

- Sessions included:
  - *Assessing Innovation Measurement*
  - *Innovation beyond R&D*
  - *The role of individuals (and networks of individuals) in Innovation*
  - *Measuring public sector innovation and social progress*
  - *Regional innovation models and data needs*
  - *Innovation measurement agendas of the future*
  - *Synthesis and directions: shaping innovation data and indicators for the future*

Proceedings of a Workshop

ADVANCING
CONCEPTS AND
MODELS FOR
MEASURING
INNOVATION

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Improving Data on Criminal Justice System Involvement in Population Health Data Collection: Proceedings of a Workshop

- Presentations included:
  - *Linkages between incarceration and health*
  - *Defining criminal justice involvement*
  - *Measuring incarceration in household surveys*
  - *Criminal justice involvement impacts on the individual, family, and community*
  - *Health effects as consequences*
  - *Current measurement approaches*
  - *Asking sensitive questions in surveys*
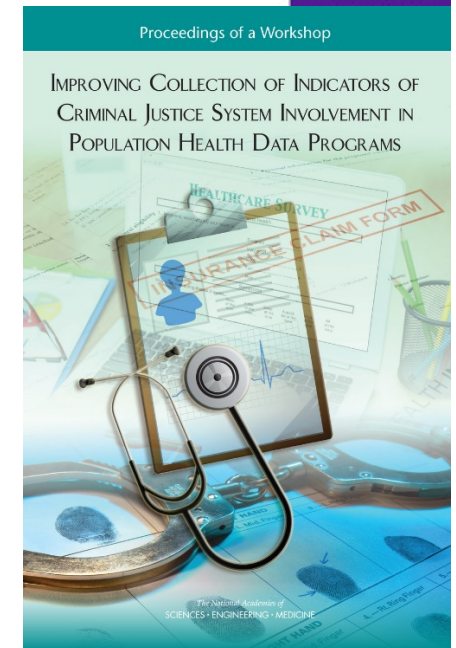
Methods to Foster Transparency and Reproducibility of Federal Statistics

- Sessions included:
  - *Views of transparency from AAPOR and OMB*
  - *Benefits and costs of transparency: views from agencies*
  - *Foreign view of benefits and costs, and approaches used for transparency*
  - *Case studies*
  - *What does transparency (and reproducibility) mean operationally?*
  - *Making confidential data part of reproducible research*
  - *What does reproducibility mean for federal statistics?*
  - *Improving transparency of statistical data with standards for metadata and work processes*
  - *Building trust: summary of a workshop*

PROCEEDINGS OF A WORKSHOP

Methods to Foster
Transparency and
Reproducibility
of Federal Statistics

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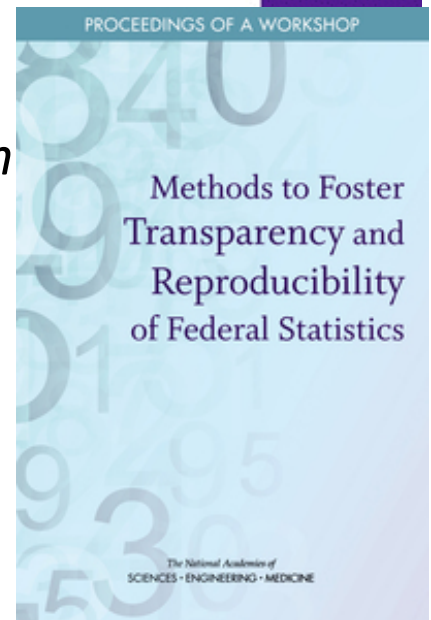
Look for Forthcoming Reports

- Developing a Research Agenda to Reduce the Number of Children in Poverty by Half in Ten Years

- Improving the American Community Survey: Proceedings of A Workshop

- Reproducibility and Replicability in Science

- Developing Indicators of Educational Equity

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Plan to Attend Upcoming Workshops

- Approaches to Estimating the Prevalence of Human Trafficking in the United States for HHS Office of Women's Health
  - April 8-9, 2019
- Challenges and New Approaches for Protecting Privacy in Federal Statistical Programs
  - June 6-7, 2019
- Contingent Work and Alternate Work Arrangements for the Bureau of Labor Statistics (TBD)
- Using Models to Estimate Hog Production: A Workshop for National Agricultural Statistics Service (TBD)

Upcoming CNSTAT Public Seminar

Tentative Title: ***Linkages among Federal, State and Local Data for Policy Purposes: Implications for National Statistics***

May 10, 2019

NAS Building 2101 Constitution Ave. NW

Lecture Room

1:30 pm

Thank You!

Contact Information

- **Brian Harris-Kojetin, Ph.D., CNSTAT Director**
  bkojetin@nas.edu

- **CNSTAT Website**
  http://www.nationalacademies.org/cnstat

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