

Evaluation of the National Center for Science and Engineering Statistics Approach to Measuring the Science and Engineering Workforce

Committee

Rita R. Colwell

Co-Chair

RITA R. COLWELL (NAS) is distinguished university professor in the Department of Cell Biology and Molecular Genetics at the University of Maryland and at the Johns Hopkins University Bloomberg School of Public Health. She served as director of the National Science Foundation between 1998 and 2004. Before joining NSF, she was president of the University of Maryland Biotechnology Institute and professor of microbiology and biotechnology at the University Maryland. She was also a member of the National Science Board from 1984 to 1990. Her interests include K-12 science and mathematics education, graduate science and engineering education and the increased participation of women and minorities in science and engineering. She is a member of the National Academy of Sciences, the Royal Swedish Academy of Sciences, the Royal Society of Canada, the American Academy of Arts and Sciences, and the American Philosophical Society. She has been awarded 55 honorary degrees from institutions of higher education, and is the recipient of the 2006 National Medal of Science. She has a Ph.D. in oceanography from the University of Washington.

James S. House

Co-Chair

JAMES S. HOUSE (NAS/NAM) is Angus Campbell distinguished university professor emeritus of Survey Research, Public Policy, and Sociology at the University of Michigan. He is a former director of the Survey Research Center at the University of Michigan Institute for Social Research. Prior to joining the University of Michigan, he taught at Duke University and the University of North Carolina, Chapel Hill. His research has focused on topics in the areas of social psychology, political sociology, social structure and personality, psychosocial and socioeconomic factors in health, survey research methods, and American society. He was elected as member of the American Academy of Arts and Sciences, the National Academy of Sciences, and the Institute of Medicine (now National Academy of Medicine). He also serves as a member on the Committee on National Statistics. He has a Ph.D. in social psychology from the University of Michigan.

Jennifer S. Bond

Member

JENNIFER SUE BOND is senior advisor for international affairs at the Council on Competitiveness and a consultant for science and technology policy issues. She is the former director of the Science and Engineering Indicators Program at the National Science Foundation. In the past she also served as an advisor to the Battelle Center for Science and Technology Policy and as a senior international policy analyst at the White House Office of Science and Technology Policy. For over a decade she was a United States Representative to the Organization for Economic Co-operation and Development (OECD) and the vice chair of OECD's National Experts on Science, Technology, and Industry Indicators. She worked with the European Union on several issues including the Community Innovation Surveys, Public Attitudes Towards Science and Technology, and Mega-Science Issues. She has an M.A. in science, technology, and public policy from George Washington University.

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Member

GEOFF DAVIS is data scientist at Verily (formerly Google Life Sciences). Previously he was staff quantitative analyst at Google. Prior to joining Google he was assistant professor in the Mathematics Department at Dartmouth College, the Texas Instruments visiting assistant professor in the Electrical and Computer Engineering Department at Rice University, a researcher in the Signal Processing Group at Microsoft Research, a developer at the San Francisco-based startup company 4charity, a visiting scholar at Sigma Xi: The Scientific Research Society, and a Wertheim fellow in the Labor and Worklife Program at Harvard Law School. He has had a long-standing interest in science education and policy issues and is a past member of the Science and Engineering Workforce Project of the National Bureau of Economic Research. He is a recipient of the Leon K. Kirchmayer Prize Paper Award of the Institute of Electrical and Electronics Engineers. He holds a Ph.D. in applied mathematics from the Courant Institute at New York University.

Donald A. Dillman

Member

DONALD A. DILLMAN is Regents professor in the Department of Sociology at Washington State University. He also serves as the deputy director for research and development in the Social and Economic Sciences Research Center at Washington State University. From 1991 to 1995, he served as the senior survey methodologist in the Office of the Director at the U.S. Census Bureau. In 2000, he received the Roger Herriot Award for Innovation in Federal Statistics for his work at the Census Bureau. He is recognized internationally as a major contributor to the development of modern mail, telephone, and internet survey methods. Throughout his time at Washington State University, he has maintained an active research program on the improvement of survey methods. He is a fellow of the American Association for the Advancement of Science and the American Statistical Association, and served as past president of the American Association for Public Opinion Research and the Rural Sociological Society. He serves as a member of the Committee on National Statistics. He has an M.S. in rural sociology, and a Ph.D. in sociology, both from Iowa State University.

Richard B. Freeman

Member

RICHARD B. FREEMAN holds the Herbert Ascherman chair in economics at Harvard University. He is currently serving as faculty co-chair of the Harvard University Trade Union Program. He is also director of the Labor Studies Program at the National Bureau of Economic Research (NBER), senior research fellow in labor markets at the London School of Economics' Centre for Economic Performance, and visiting professor at the London School of Economics (LSE). He is currently directing the NBER/Sloan Science Engineering Workforce Project and an LSE research program on the effects of the internet on labor markets, social behavior and the economy. His many research interests include the job market for scientists and engineers. He is the recipient of the Mincer Lifetime Achievement Prize from the Society of Labor Economics and the IZA Prize in Labor Economics. He was also appointed Frances Perkins fellow of the American Academy of Political and Social Science. He has a Ph.D. in economics from Harvard University.

Jack G. Gambino

Member

JACK G. GAMBINO is director of the Household Survey Methods Division at Statistics Canada. He manages a division consisting of three subdivisions responsible for the design, development, implementation, and maintenance of almost all of Statistics Canada's household surveys. Previously, he led a division that was responsible for the methodology of Canada's census of population. He participated in two redesigns of the Canadian labor force survey, proposing innovations to improve the survey design and planning studies to evaluate these proposals. He has also provided guidance and advice to methodologists and client program managers on methodological issues, including research and development of innovative methods, and chaired the Methodology Research and Development Committee, which was responsible for overseeing research in the methodology branch. He received his Ph.D. in statistics from the University of Toronto.

Maresi Nerad

Member

MARESI NERAD is professor of higher education leadership in the College of Education and the founding director of the Center for Innovation and Research in Graduate Education (CIRGE) at the University of Washington. Previously, she was director of graduate research at the University of California, Berkeley, where she undertook various studies on graduate education in the United States and abroad, including examinations of factors affecting time-to-degree and doctoral attrition, as well as a national study on the career paths of doctorates. In her current work at CIRGE she oversees research on the quality of doctoral programs, careers of doctorate holders, and evaluations of innovations in doctoral education in the United States and in an international context. She served on many national and institutional doctoral education reviews and on U.S. and international advisory boards, such as the International Advisory Committee for Science and Engineering of the National Science Foundation, the Presidential Innovation Broad of the University of Bremen, Germany, and the Graduate Academy of the Goethe University of Frankfurt. She has an M.A. in political science and physical education from the Technical University of Darmstadt, Germany, and a Ph.D. in higher education from the University of California, Berkeley.

Randall J. Olsen

Member

RANDALL J. OLSEN is professor emeritus of economics and former director of the Center for Human Resource Research at Ohio State University. He also served as the director of the Initiative in Population Research, an interdisciplinary population center at Ohio State University. For over 20 years he has been heavily involved with the National Longitudinal Surveys (NLS), a set of large-scale surveys that follow cohorts of Americans to collect data on labor force behavior, educational attainment, training, and related topics. He has overseen the transition of the NLS from legacy data collection systems to an integrated system for handling all phases of survey work, from instrument authoring through data dissemination. His interests are in econometrics, labor economics, and applied micro and economic demography. He has served as an associate editor for *Evaluation Review*, the *Journal of the American Statistical Association*, and *Demography*. He holds a Ph.D. in economics from the University of Chicago.

Willie Pearson, Jr.

Member

WILLIE PEARSON, Jr. is professor of sociology in the School of History, Technology, and Society at Georgia Institute of Technology. Prior to joining the faculty at Georgia Tech as chair of the School of History, Technology, and Society, he held a distinguished appointment as Wake Forest professor of sociology at Wake Forest University and an adjunct position in medical education at Wake Forest University School of Medicine. Most of his research has centered on the career patterns of Ph.D. scientists, particularly African-Americans, and on human resource issues in science and engineering. He received the Giants in Science award from the Quality Education for Minorities in Mathematics, Science, and Engineering Network, is a national associate of the National Academies of Sciences, Engineering, and Medicine, and a fellow of the American Association for the Advancement of Sciences. He has a Ph.D. in sociology from Southern Illinois University at Carbondale.

Keith F. Rust

Member

KEITH F. RUST is vice president and associate director of Westat's statistical staff. He is also a research associate professor in the Joint Program on Survey Methodology at the University of Maryland. He was formerly with the Australian Bureau of Statistics. He has extensive experience in sampling methods, the design and specification of large-scale sample surveys, and analysis of survey data. His areas of special expertise include methods for analyzing large, complex data sets; methods of deriving survey weights; and sampling error estimation procedures. He has applied his research and knowledge to a variety of education research projects over the past several years, including the Programme for International Student Assessment (PISA) and the National Assessment of Educational Progress (NAEP). He is a fellow of the American Statistical Association and a member of the International Statistical Institute and served as a member of the Committee on National Statistics. He received a Ph.D. in biostatistics from the University of Michigan.

Nora C. Schaeffer

Member

NORA CATE SCHAEFFER is Sewell Bascom professor of sociology in the Department of Sociology at the University of Wisconsin-Madison and faculty director of the University of Wisconsin Survey Center where she teaches courses in survey research methods and conducts research on questionnaire design and interaction during survey interviews. She currently serves as a member of the Public Opinion Quarterly Advisory Board of the American Association for Public Opinion Research and of the General Social Survey Board of Overseers. She recently completed terms as the Council on Sections Representative for the Survey Research Methods Section of the American Statistical Association and as a member of the Census Advisory Committee of Professional Associations. She was selected as a fellow of the American Statistical Association. She previously served on the Committee on National Statistics. She has an M.A. degree in urban studies, and a Ph.D. in sociology, both from the University of Chicago.

James Wagner

Member

JAMES WAGNER is research associate professor at the Survey Research Center and research affiliate at the Population Studies Center, both at the Institute for Social Research, University of Michigan. He teaches in the Joint Program in Survey Methodology, and serves as principal investigator on several studies. He is currently the chief mathematical statistician on the National Survey of Family Growth. His research interests include nonresponse error, quality indicators for survey data, and responsive or adaptive design. He also develops and implements responsive design plans for large surveys. He has an M.S. in political science, and a Ph.D. from the program in survey methodology, both from the University in Michigan.

Yu Xie

Member

YU XIE is Bert G. Kerstetter '66 university professor of sociology and director of the Center on Contemporary China at the Princeton Institute of International and Regional Studies, Princeton University. Prior to this he was distinguished university professor of sociology, statistics, and public policy at the University of Michigan. He is also visiting chair professor of the Center for Social Research, Peking University, in China. His main areas of interest are social stratification, demography, statistical methods, Chinese studies, and sociology of science. He is the author of the book *Is American Science in Decline?* with Alexandra Killewald. He is a member of the American Academy of Arts and Sciences, Academia Sinica, and the National Academy of Sciences. He has a B.S. in metallurgical engineering from Shanghai University of Technology, an M.A. in the history of science, and an M.S. and Ph.D. in sociology, all from the University of Wisconsin-Madison.