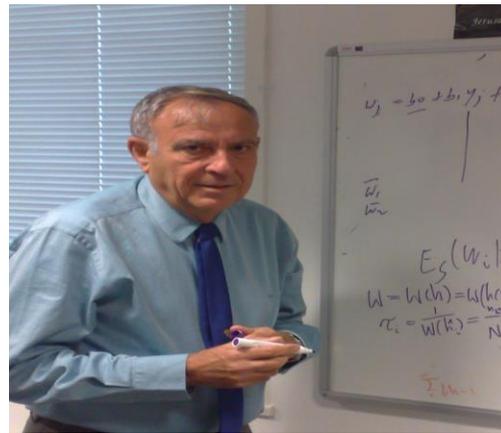
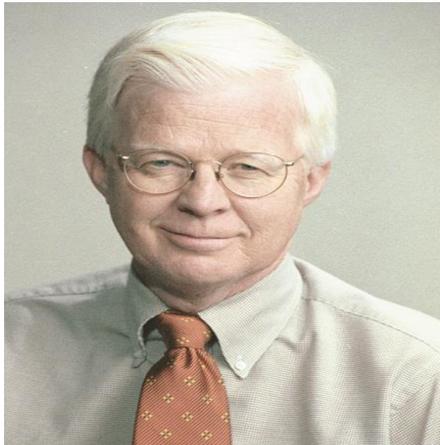


## Barry Bosworth and Danny Pfeffermann to Receive 2018 Julius Shiskin Award



Barry Bosworth, Senior Fellow in the Economics Studies Program and Robert V. Roosa Chair in International Economics at the Brookings Institution, and Danny Pfeffermann, Director of Israel's Central Bureau of Statistics and Professor of Statistics at the Hebrew University of Jerusalem, Israel and the University of Southampton, UK, have been selected to receive the 2018 Julius Shiskin Memorial Award for Economic Statistics. The award recognizes unusually original and important contributions in the development of economic statistics or in the use of statistics in interpreting the economy.

Dr. Bosworth is recognized for conducting research using key federal government statistical programs to study topics such as capital formation, saving, and productivity growth, and for advising the statistical agencies to improve these programs. Professor Pfeffermann is recognized for collaborating with statistical agencies around the world to improve several major programs such as time series small area estimation, estimation of mean square error of seasonally adjusted and trend estimators, and modeling of complex survey data, accounting for informative sampling and nonresponse.

Bosworth and Pfeffermann become the 46<sup>th</sup> and 47<sup>st</sup> recipients of the Award; they will be honored at events hosted by the three sponsors of the award: the Washington Statistical Society, the National Association for Business Economics (NABE), and the Business and Economics Section of the American Statistical Association.

**Dr. Bosworth** is a Senior fellow in the Brookings Economics Studies Program and holds the Robert V. Roosa Chair in International Economics. He has been a senior fellow since 1979 and a research associate from 1971 to 1977. He was Director of the Council on Wage and Price Stability from 1977 to 1979, he taught at Harvard University and the University of California at Berkeley, and served as a staff economist for the Council of Economic Advisors. Since 2003, he has served as a member of the Bureau of Economic Analysis (BEA) Advisory Committee. He also served as a Member of the National Academy of Sciences Panel on Measuring Productivity in Higher Education, the 1999 Technical Panel on Assumptions and Methods at the Social Security Advisory Board, and the Technical Advisory Panel on the Medicare Trustee Reports.

At Brookings he directed research projects on topics such as capital formation, saving, inflation, and productivity growth. He was a prominent participant in numerous policy forums involving these and other topics such as the measurement of wage and price inflation, Social Security, retirement, and the benefits and costs of various international trade agreements. He also studied country-specific policies of Korea, Puerto Rico, Mexico, Chile, and Sweden as well as international trade and economic growth among the U.S., India and China.

Over the years, Dr. Bosworth has shared his vast knowledge and experience through a wide array of programs, designed to tackle some of the most pressing issues confronting our economy—everything from the impact of international trade agreements to the role of IT in productivity growth. He also has written extensively on international issues, such as the decline in saving, and the role of the United States in the global economy. These efforts led him to study differences in data methods across countries and to assess their importance in global comparisons. For example, his work with Susan Collins on productivity and growth performance in a wide range of economies was striking in the data challenges it posed and the way they resolved them. ("Accounting for Growth: Comparing China and India," *Journal of Economic Perspectives*, vol. 22, no. 1 (2008).)

These projects focused on comparisons of labor and multifactor productivity growth measures in the service and manufacturing sectors of the U.S. economy, the differential trends in the information technology-producing and information technology-using sectors, and whether the alleged "new economy" of the 1990s was in fact novel. His research had a strong emphasis on the validity of his source data, and he frequently questioned definitions and pushed the data as far as possible to provide the best possible answers. At the same time, he was unusually careful with data, and as many working at statistical agencies know, and was very tenacious when it comes to tracking down a data puzzle or anomaly.

For the Shiskin Award, Dr. Bosworth is recognized primarily for important contributions that improved federal economic statistics. His use of based on his public policy research, which frequently used data from key federal government statistical programs. He has used these statistics to interpret economic growth in the U.S. and foreign economies, to measure wage and price growth, to assess the role of information technology in the "new" U.S. economy, to study productivity growth in manufacturing and service sectors, and the role of information technology production and consumption in accounting for variations in multifactor productivity growth.

His research has shaped statistical agency agendas by highlighting emerging issues, identifying measurement areas for improvement, and spurring collaboration between BEA and its statistical agency partners. His work on the services and other non-manufacturing sectors, multifactor productivity growth, and the importance of IT in the "new" economy has been instrumental in launching and driving BEA's efforts in these areas. As part of his research on services, Dr. Bosworth and fellow Brookings expert and 1997 Shiskin Award recipient, Dr. Jack Triplett organized a series of Brookings Institute workshops on measurement issues in the services industries to gain a better understanding of output and productivity data. This project was unusual in that it involved the support and assistance of the federal statistical agencies, a collaboration that greatly increased the value of the end-results. Drs. Bosworth and Triplett's in-depth analysis of productivity in the services industries not only identified data deficiencies but also outlined options for mitigating these problems. In response, BEA, along with the Bureau of Labor Statistics and the Census Bureau, initiated a long-term plan to expand and improve the measurement of services. (See *Services Productivity in the United States New Sources of Economic Growth*, with Jack Triplett.) These efforts resulted in notable improvements to the relevance and accuracy of the statistics of all three agencies. For example, BEA used information from these workshops, to develop, for the first time, a method to produce gross output across all industries. These statistics presented many BEA users with new

opportunities to analyze industry performance and structural changes in the economy.

Finally, for the last fifteen years, BEA has had a direct line to Dr. Bosworth's expertise through his service on their Advisory Committee. BEA has used his recommendations to the Committee to extend the definition of investment to include research and development, introduce new methods to measure the implicit services provided by the banking and insurance industries, and to launch a variety of satellite accounts that spotlight emerging sectors of the economy including health care and the digital economy.

Throughout his long and illustrious career, Dr. Bosworth has been an innovator in the use of statistical research in economic policy analysis. He has given the statistical agencies work that has led to improvements to the U.S. economic accounts and related measures that have helped to ensure that the estimates of accounts has keep pace with the rapidly evolving U.S. economy.

**Professor Danny Pfeffermann** is the National Statistician and Director General of the Central Bureau of Statistics of Israel since 2013. He is also Professor of Social Statistics at the University of Southampton (since 2001), and Professor Emeritus of Statistics at the Hebrew University of Jerusalem since 2010.

Professor Pfeffermann has been selected to receive the 2018 Shiskin Award in recognition of his outstanding contributions to survey sampling theory and practice and time series analysis, particularly for his fundamental work on the analysis of complex survey data in the presence of informative sampling, small area estimation, and time series analysis. He initiated new methods to deal with the analysis of complex survey data under informative sampling when the assumed model for the population does not hold for the sample due to sample selection bias. He derived sample distributions for making valid inference on the population model parameters, and demonstrated that the proposed methods lead to significant gains in efficiency compared with the traditional survey methods based on weighting especially when the survey weights exhibit significant variability. His co-authored 2009 paper on multi-level modeling under informative sampling was a major contribution to this topic, because multi-level models are extensively used in the social sciences. Furthermore, his contributions have had a direct impact on the improvement of economic statistics in many countries, including the United States.

Professor Pfeffermann has also been a highly respected researcher for many years in the areas of survey methodology and economic statistics. He has made important contributions to analytic inference from complex sample surveys, to methods for estimating the mean squared error of seasonally adjustment and trend estimators, small area estimation (SAE), observational studies, and informative sampling and nonresponse, and he continues to conduct research on these areas. For example, he was looking into SAE under a two-part random effects model with application to estimation of literacy in developing countries, and developed new bootstrap bias corrections with application to estimating the mean squared prediction error in SAE with binary data.

SAE is a topic of great interest because of growing demand for reliable small area statistics that are needed for formulating policies and programs, distributing federal funds, and making local decisions. Due the small sample sizes within the areas (and often no samples within many of them), model-based methods have to be used, but typically, the models assume the absence of sample selection bias within sampled areas and across sampled areas. Pfeffermann and his co-author addressed sample selection bias in a 2007 paper that developed new methods that take it into account. They extended the 2007 paper theory to not missing at random (NMAR) nonresponse in a 2018 paper.

Professor Pfeffermann is highly sought after for giving workshops and plenary talks on SAE. A

conference on this topic has taken place in Shanghai in June of this year to celebrate Danny's 75th birthday. His work in SAE started back in the 1990's, before the techniques of present days were developed and widely accepted as they are today. He has written many important papers on SAE over the years. His 2002 and 2013 authoritative review articles on recent developments in the field, published in the *International Statistical Review* and in *Statistical Science*, are particularly widely cited. His international reputation in SAE is demonstrated by his selection to be a plenary speaker at the Satellite meeting SAE 2017 of the International Statistics Institute World Statistical Congress in Paris in 2017, and by the dedication of SAE 2018 to be "A Celebration of Professor Danny Pfeffermann's 75th Birthday."

Professor Pfeffermann's work has been incorporated in statistical programs throughout the world. In the United States, his work on SAE and seasonal adjustment has been implemented by the Bureau of Labor Statistics (BLS). The work has improved the quality of estimates for the BLS Local Area Unemployment Statistics program, by developing a new methodology to make the small area estimates robust against model misspecification. This is achieved by benchmarking their sum to direct survey estimates at an aggregated level, which are reliable, making sure that the variances of the resulting benchmarked estimators fully account for the benchmarking process and for the sampling errors of the benchmarks. The results of this work have led to important changes in the production of official monthly labor force estimates for all 50 States and the District of Columbia. Pfeffermann is currently working with BLS staff on combining annual survey data from the new American Community Survey (ACS), with monthly Current Population Survey (CPS) data, so as to improve labor force estimates for over 3,000 sub-state areas. In addition, while consulting for BLS, he has made important contributions to the estimation of the mean squared error (MSE) of seasonally adjusted and trend estimators produced by X-11-ARIMA or other decomposition methods. The performance of the new MSE estimators was assessed by a simulation study and by application to real series obtained from the BLS establishment survey in a co-authored 2014 article. He has also consulted with BLS on alternative model-based and design-based approaches to MSE estimation. The results of his work have been used to identify strengths and weaknesses in official methods and provided additional direction in implementing subsequent improvements. Professor Pfeffermann continues to visit BLS regularly as a consultant on time series modeling applied to CPS data. He developed new bootstrap methods to estimate prediction MSE for state space models with estimated parameters. This is another major contribution, because typically, the variability due to estimation of model parameters is not accounted for.

Professor Pfeffermann has a longstanding research interest in the analytic uses of survey data, that started with regression analysis. He has made valued contributions to our understanding of the application of statistical models to data from complex samples and to the appropriate mode of inference to use. Multilevel modeling of survey data is an under-researched area, and his 1998 co-authored paper on this topic remains a key reference.

He continues to be active in research and in the profession. He has numerous publications in leading statistical journals, and co-edited with Prof. C.R. Rao the two-volume handbook on "Survey Sampling: Theory, Methods and Applications." This Handbook is a standard reference for researchers and practitioners in survey sampling. He also has been heavily involved in editorial work, including associate editor for *Biometrika* (2001-7), *Survey Methodology* (1991-present), and *JSPI* (1998-2000). He was Chair of the Program Committee of the International Association of Survey Statisticians during the years 1999-2003, and served as the President of the Association during the years 2013-2015. He is also a former President of the Israel Statistical Society.

Professor Pfeffermann's outstanding work has been recognized by the many awards he has received. In 2017, he received the West Medal from the Royal Statistical Society, an award that is given for

“outstanding contributions to the development or communication of official statistics.” The citation includes references to his methodological work noted above, and to his continuing efforts to train the next generation of official statisticians. In his lecture on receiving the medal, he outlined his vision for modernizing official statistics, including the integration of multiple data sources and big data. In 2011, he received the Waksberg award sponsored by the American Statistical Association (ASA), Statistics Canada, and Westat Inc. In 2015, he was selected by the Washington Statistical Society, U.S. National Agricultural Statistics Service, and Westat, Inc. to deliver the Morris Hansen Lecture, and by the University of Calcutta, India to deliver the S.N. Roy Memorial Lecture award.

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