

## Overview

The Second Food Security Measurement and Research Conference was held February 23-24, 1999, in Alexandria, VA. The conference was co-sponsored by three Federal agencies that were key players in the development of a national food security measure for monitoring the prevalence of hunger and food insecurity in the United States. These agencies are the U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS) and Economic Research Service (ERS), and the U.S. Department of Health and Human Services's (HHS) National Center for Health Statistics (NCHS).

The conference was the second in a series and part of an ongoing program of Federal food security research. The goal of this research conducted in collaboration with academic and private-sector researchers was to establish a stable measurement strategy to annually assess the food security status of the U.S. population. Since 1995, USDA has sponsored an annual Food Security Supplement to the U.S. Bureau of the Census' Current Population Survey (CPS). These data have been used to produce annual estimates of U.S. food security and hunger for 1995-99 and State-level estimates for 1996-98.

The first Food Security Measurement and Research Conference, held in January 1994, brought together experts from government, universities, research institutes, and nonprofit groups interested in food security measurement. The aims of that conference were to synthesize the direction of earlier research, to develop consensus on the contents of a survey instrument for the CPS Food Security Supplement, and to set up a structure for continuing research collaboration.

A similar format was adopted for the Second Food Security Measurement and Research Conference. However, given the earlier successes in collecting national population data and developing a standardized measure, this second conference more tightly focused on developing priorities for a future research agenda. Efforts were made to ensure a wide range of perspectives and to solicit critical review of the standard measure and prior research. Planning for the conference and follow-up activities were coordinated by the Federal Interagency Working Group on Food Security Measurement made up of staff from the three sponsoring agencies as well as representatives from the Center for Nutrition Policy and Promotion and USDA's Agricultural Research Service.<sup>1</sup>

The agenda of the conference was structured to provide a mix of panel presentations and more formal research papers. The conference was opened with a set of welcoming remarks from USDA's Eileen Kennedy, Deputy Under Secretary for Research, Education, and Economics, and Julie Paradis, Deputy Under Secretary for Food, Nutrition, and Consumer Services; and HHS's Linda Meyers, Director, Office of Disease Prevention and Health Promotion.

In session I of the conference, three panelists provided background on various aspects of Federal food security research and monitoring activities. Steven Carlson outlined the concept of food security and the process by which a food security instrument was developed and incorporated into a supplement to the Current Population Survey (CPS). He also reported initial major findings: "For the 12 months ending in April 1995, 12 million households, 12 percent of the U.S. population, experienced some degree of food insecurity. A million of those households, roughly 4 percent of the population, experienced either moderate or severe hunger, and 800,000 households, less than 1 percent, experienced severe hunger." Chris Hamilton covered the basics of the Rasch model, which underlies the measurement of food insecurity, and provided details on the 18 items from the CPS survey questionnaire that make up the food

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<sup>1</sup>Members of this working group consisted of Margaret Andrews, ERS, David Smallwood, ERS, Mark Nord, ERS, Gary Bickel, FNS, Steven Carlson, FNS, Ted Macaluso, FNS, Mary Hama, Agricultural Research Service, and Peter Basiotis, Center for Nutrition Policy and Promotion, as well as Karil Bialostosky, NCHS, and Ronette R. Briefel, NCHS.

security scale. He also explained how the Rasch model combines the household's item responses into a number that measures the degree of a household's food insecurity, and how the household is classified into various categories of severity along a food security and insecurity scale. Ronette Briefel reported how other national surveys and demonstration projects are using, or plan to incorporate, the food security instrument.

In session II, James Ohls described work conducted on whether the scale estimated from the 1995 CPS data using a Rasch model is applicable to data collected in the 1996 and 1997 CPS Food Security Supplements. The work affirmed the robustness of the Rasch model and showed the food security scale to be effectively steady over time. The model's assumption of stability across certain demographic subgroups also seemed acceptable. The research explained by Stephen Blumberg used a streamlined six-item scale to classify households into three categories of food insecurity and hunger (one less category than used by the 18-item scale). The research found that the resulting classification was similar to the results of the full 18-item scale, and Blumberg recommended the use of the six-item scale "if resources do not permit 18 items and your research goals do permit the combining of the moderate and severe hunger categories." The session was concluded by Mark Nord, who presented work that addressed whether the (18-item) food insecurity scale—which was developed as a general measure of food insecurity—is well-suited specifically for measuring the national prevalence of households with hungry children. Using the CPS data, Nord reported various possible figures for the number of such households and recommended that the government consider whether development of a second scale is warranted for estimating children's hunger.

In the conference's Luncheon Address, Susan Mayer contrasted the official measure of poverty with the food security measure, and three ways in which the latter is "relative" using historical examples of diet and nutrition from post-World War I and the Great Depression. Mayer went on to stress that people lack a clear intuition for the concept of food security, they view hunger as an attribute of individuals and not households, and the current food security measure results in figures that can be difficult for the public or Congress to interpret.

Session III contained three papers that examined applications of food security measurement. The first paper by Lori Reid focused on food insecurity among children, and presented preliminary results that found a very strong relationship between poverty status and household food insecurity. Other variables such as family structure, homeownership, and mother's education had distinct influences on a child's level of food insecurity. Joda Derrickson reported on work that found the food security measure to be a valid and stable instrument for most groups of Asian and Pacific Islanders in Hawaii, although the concept of "balanced" meal was not well understood. Valerie Tarasuk used a sample of Canadian women who used food banks to examine events that precipitated food insecurity for these women and to estimate the relationships between their food insecurity and their nutrient intake for a number of nutrients.

In session IV, the conference's first day concluded with a series of three speakers who addressed the establishment of a framework for a research agenda. Christopher Jencks observed, "The intricacies of Rasch modeling are not easy to convey" and advised that more transparent ways be considered for providing information about hunger. He identified potential advantages of the current measure, discussed the impact of different time-frames on the measured prevalence of hunger and its interpretation, and examined what is known and how much more needs to be learned about the causes of food insecurity and hunger. Angus Deaton stated that hunger and poverty are closely related concepts to most people (apart from economists, who usually view poverty as low income and not as low consumption of any one item). He questioned the validity of that connection, comparing U.S. food insecurity data with household responses to food consumption questions in India. Deaton considered problems of self-reported measures, including the food security measure, and urged further research on external valida-

tion and on development of a measure of food insecurity at the individual level (in contrast to the current household level). Johanna Dwyer explained how nutritional status, like disease, is a multifactorial concept. Dwyer considered how the food security measure can be applied to target groups at special risks, such as children, the elderly, the mentally retarded, and others, and she noted that it would be of great interest to know the food security histories of people with various chronic illnesses. Dwyer stressed that food security data need to be synthesized with biological data in addition to economic data.

In session V, the conference's second day continued the exploration of applications of food security measurement. Craig Gundersen reported on work that used the data from the Survey of Income and Program Participation, which included a food insufficiency question for a household. The study examined how negative shocks—such as lower earnings or lost food stamps—can precede a household's food insufficiency, and how factors such as liquid savings can help a household weather negative shocks. The work described by Katherine Alaimo used NHANES III data to relate a child's (proxy-reported) health status to the household's response to the food insufficiency question. The study also included a wide variety of other economic, educational, and health factors to isolate the role of food insufficiency. Karin Nelson explained research that used an eight-item measure for assessing the prevalence of hunger and food insecurity among patients at a county medical center. The study also gave special attention to diabetics and their experiences.

Session VI provided conference participants an opportunity to discuss in break-out groups a variety of issues related to food security measurement and research. Upon reconvening all conference participants, the essence of each group's discussion was reported.

In session VII, the conference concluded with a panel discussion on the next steps for a research agenda. Christine Olson reported some additional research results on the body mass index and urged that food insecurity be related to poor health consequences. Lynn Parker reviewed some history of hunger measurement, encouraged communities to use food security measures at the State and local level, and stressed the importance of annually measuring hunger and bringing the results to public attention. Richard Bavier raised several issues critical of how food insecurity is measured, especially the use of the item response theory, and recommended achieving greater discrimination between the frequency, intensity, and duration of disrupted food intake and hunger. Gary Bickel added that Rasch modeling has useful applications outside of educational testing, the area in which it was developed. He provided examples and noted the distinction between hunger as a personal experience and the public perception of hunger as a social problem. Helen Jensen concluded the panel session by surveying the uses of the food security measure, and noting ways through which the measure might be improved, for example, asking questions with shorter periods of recall or developing a high-frequency longitudinal survey.

This publication contains a set of research papers prepared by conference participants that provide further detail on the content and findings of some research presented at the conference. The companion publication, *Second Food Security Measurement and Research Conference, Volume I: Proceedings* (February 2001, Stock # ERS-FANRR-11-1), contains abbreviated proceedings of all presentations and remarks by discussants at all sessions from the conference. Not all conference participants elected to prepare papers for this second volume.

In followup to the conference, the Federal Interagency Working Group on Food Security Measurement met in April 1999 to review and discuss the conference proceedings. The group identified a set of research priorities as outcomes of the conference and posted them to the ERS website. The major themes of highest priority are grouped into two categories and are listed as follows:

### **Research Priorities: Measurement**

- Developing and testing individual (as opposed to household) scales for measurement of prevalence and severity of food insecurity among adults and children;
- Improving the measurement and understanding of the dynamics of food insecurity, such as frequency and duration of episodes;
- Developing better questions and strategies for asking about nutritional quality (alternative to balanced meal questions);
- Assessing the effects of the questionnaire structure, item sequencing, and survey context on response patterns and measured food security levels; and
- Determining research situations appropriate for implementation of abbreviated household food security scales and/or scales with different time frames such as monthly versus annual.

### **Research Priorities: Applications and Policy**

- Focusing on sampling and research on food insecurity and its consequences among high-risk groups with chronic health conditions, mental illness, and other biological vulnerability (especially among the homeless, elderly, and young children);
- Developing a research basis for linking community food insecurity and household food insecurity;
- Better understanding the context and determinants of food insecurity and hunger and their relationship to poverty, household resources, and time management; and
- Applications that assess and investigate the linkages between food insecurity measures, welfare reform, and measures of program performance.

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