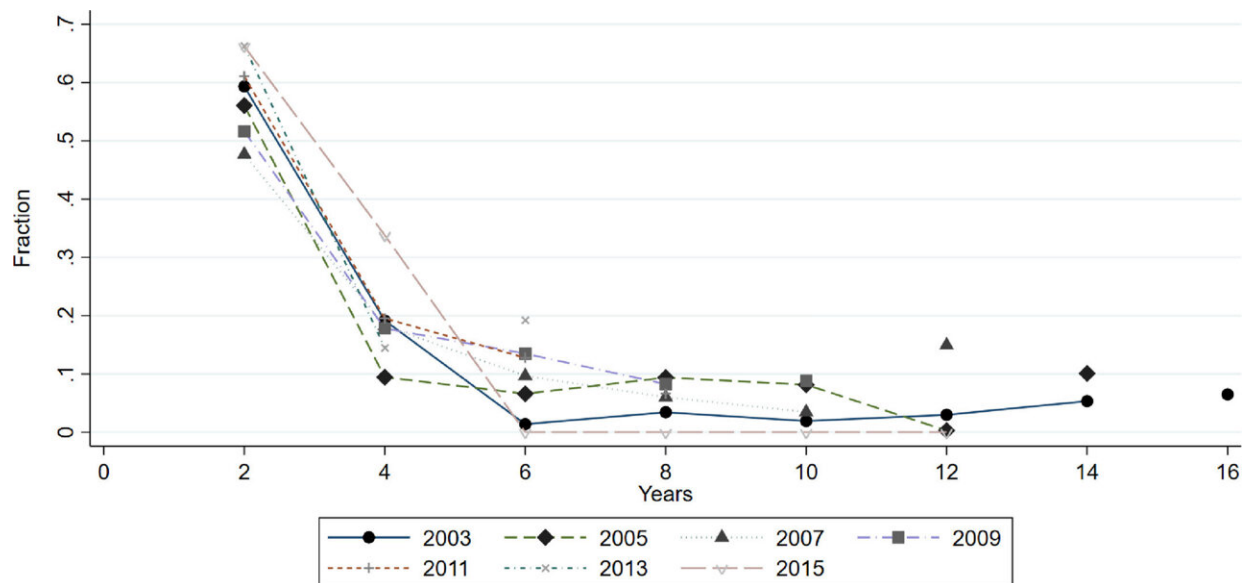


New measuring tool tracks food security over time

October 26 2023, by Tom Fleischman



Spell length of estimated food insecurity (2003–2015). Sample includes households with PFS observations from 2001 to 2017. The unconnected rightmost dots reflect the right-censored share. Credit: *American Journal of Agricultural Economics* (2023). DOI: 10.1111/ajae.12433

Researchers from the Charles H. Dyson School of Applied Economics and Management have developed a new method for measuring food insecurity, which for millions of people in the U.S. is more than just an abstract concept.

The group's probability of food security (PFS) measures the likelihood that a household's food expenditures equal or exceed the minimum cost of a healthful diet. The researchers then put the PFS to the test, analyzing food security dynamics over a recent 17-year period, and found that a third of U.S. households experienced at least temporary food insecurity.

Seungmin Lee, a doctoral student in the field of applied economics and management, was lead author of "[Food Security Dynamics in the United States, 2001–2017](#)," which published in the *American Journal of Agricultural Economics*.

Co-authors were Chris Barrett, the Stephen B. and Janice G. Ashley Professor of Applied Economics and Management at Dyson, and John Hoddinott, the H.E. Babcock Professor of Food & Nutrition Economics and Policy in the Division of Nutritional Sciences, in the College of Human Ecology.

This research sprang from Barrett and Hoddinott's previous work examining poverty and food insecurity dynamics in low-income countries. According to the U.S. Department of Agriculture (USDA), at least one in 10 U.S. households has been food insecure in any given year since 1995, when it began reporting its official food security measure, the Food Security Supplement to the Current Population Survey (CPS-FSS).

The CPS-FSS has its roots in the Radimer-Cornell Hunger Scale, developed by then-doctoral student Kathy Radimer, Ph.D. '90.

"In the United States, there has been much less work on food insecurity dynamics than in many low-income countries, but it's no less salient here," said Barrett, who also has an appointment in the Brooks School of Public Policy. Hoddinott noted that while the U.S. is very wealthy on

average, "there is a significant fraction of the population who are really poor and do not have the resources to acquire an adequate and healthy diet."

While about a third of U.S. households experienced some food insecurity over the 17-year period the team studies, for about half of them, it was just temporary—what the researchers termed "transitory food insecurity." For the rest, who experience "chronic food insecurity," more long-term means of food assistance are necessary.

"This matters for policymakers," Barrett said. "Knowing which sort of food insecurity different people experience is really crucial to designing effective policy to safeguard people's basic human right to food."

PFS measures the estimated probability that a household's food expenditures will equal or exceed the minimal cost of a healthful diet as reflected by the USDA's Thrifty Food Plan cost, which informs the basis for maximum benefits in the federal government's Supplemental Nutrition Assistance Program, known as SNAP.

The PFS is based on household food expenditure data, and constructed using the estimated association between food expenditures and household characteristics that are strongly associated with food security—including gender, race and educational attainment of the household head.

PFS is calibrated so that the food insecurity prevalence it estimates exactly equals prevalence estimates based on the USDA's Food Security Scale Score. Thus while the PFS is not identical to food insecurity as currently measured in the U.S., it tracks the official measure in a way that uncovers food insecurity dynamics that cannot be studied using the official measure—in particular, the likely duration and severity of food insecurity.

"How many households are just briefly food insecure and need a food pantry to tide them over, versus one that needs SNAP benefits, or Social Security for those who have disabilities?" Lee said. "That's where you need to study dynamics, you need to study what happens to people over time."

For the 17-year period they studied, the researchers found, using PFS, that two-thirds of U.S. households experienced no food insecurity, and of those that became food insecure at any moment in time, on average, more than half regained food security within two years. They also found that households headed by female, non-white or less educated individuals disproportionately suffered persistent or severe food insecurity.

"PFS gives us this ability to distinguish between chronic and transitory food insecurity," said Hoddinott, who also has appointments at Dyson and in the Department of Global Development. "That's something that, to the best of our knowledge, no one has been able to do before in the United States. PFS identifies very particular groups with very particular [food security](#) needs, and thus allows for potentially a more refined approach to addressing [food insecurity](#) issues in the United States."

More information: Seungmin Lee et al, Food security dynamics in the United States, 2001–2017, *American Journal of Agricultural Economics* (2023). [DOI: 10.1111/ajae.12433](https://doi.org/10.1111/ajae.12433)

Provided by Cornell University

Citation: New measuring tool tracks food security over time (2023, October 26) retrieved 3 May 2024 from <https://phys.org/news/2023-10-tool-tracks-food.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.