

# Differences in national food security best explained by household income, not agriculture

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One of the most comprehensive statistical analyses of drivers of food insecurity across 65 countries has concluded that household income

consistently explains more discrepancy in food security than any other factor, including agricultural land resources and production. The Thayer School of Engineering at Dartmouth study, "Cross-national analysis of food security drivers: comparing results based on the Food Insecurity Experience Scale and Global Food Security Index," was recently published by the peer-reviewed journal *Food Security*.

Given the persistent issue of food insecurity—one of the United Nation's sustainable development goals is to achieve zero hunger—the study's results are vital in determining how best to tackle the complex problem.

"We're trying to inform international development efforts. There's a long history of rich countries launching initiatives to help the [developing world](#) which aren't very effective," said co-author Lee Lynd, the Paul E. and Joan H. Queneau Distinguished Professor of Engineering at Dartmouth. "If the real reason people are food insecure is that they're poor, the best thing you may be able to do for them is to give them a job."

"When we took a data-driven look at this, we found that the amount of money that households were actually spending on goods and services was by far the most important determinant of food [security](#) amongst the countries that we studied," said first author Andrew Allee, Dartmouth Engineering Ph.D. candidate.

At the cross-national level, the study concludes quantity and quality of a nation's agricultural land were not predictive of national food security, and instead, the most effective strategies to improve food security will include measures to increase citizens' capacity for consumption. The researchers are quick to point out that no single metric can capture all dimensions of food security, but the models consistently showed that household spending, measured as per-capita household final consumption expenditure, was the single best predictor of food security,

meaning an increase in income usually drives an increase in food security.

Allee and Lynd worked with Vikrant Vaze, the Stata Family Career Development Associate Professor of Engineering at Dartmouth, on linear regression models which used country characteristics to predict [food security](#) from the Food Insecurity Experience Scale and the Global Food Security Index, two well-known indicators of [food](#) insecurity. The 65 countries studied represent 56 percent of the global population.

**More information:** Andrew Allee et al, Cross-national analysis of food security drivers: comparing results based on the Food Insecurity Experience Scale and Global Food Security Index, *Food Security* (2021). [DOI: 10.1007/s12571-021-01156-w](https://doi.org/10.1007/s12571-021-01156-w)

Provided by Thayer School of Engineering at Dartmouth

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