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Researchers link India's food program to better health and stronger incomes

Despite humanity's scientific achievements and globalized economy, malnutrition remains a global issue. The United Nations estimated that 2.33 billion people experienced moderate or severe food insecurity in 2023.

Researchers at UC Santa Barbara, the Indian Institute of Management and the University of Calgary examined the impacts of the world's largest food assistance program to understand its effectiveness. Their results, published in the American Economic Journal, reveal health and economic benefits that reach far beyond the caloric content of the subsidized food.

"Malnutrition in India has been this long-standing problem," said co-author Kathy Baylis, a professor in UCSB's Geography Department and the Environmental Markets Lab (emLab). "Stunting rates for children in India are the same as they are in some of the poorest countries in sub-Saharan Africa, even though it is a lot wealthier." As a result, India's Public Distribution System (PDS) is the world's largest food transfer program, and India's most far-reaching social safety net.

PDS operates in a similar manner to how food stamps worked in the United States in decades past: Eligible families and individuals can purchase bags of rice or wheat at heavily subsidized rates. The PDS serves 800 million people and accounted for 60% of India's social assistance budget in 2019 through 2020, the paper explains.

Changes to India’s food assistance program

For many years PDS had been administered at a state level. But in 2013, India’s federal government established minimum standards for the program. Many states had to increase their assistance as a result, providing either larger grain portions or lower prices.

The researchers compared the effects between states already meeting the federal standards and those that had to change. They used data from the International Crops Research Institute for the Semi-Arid Tropics, which, with support from the Gates Foundation, implemented a five-year survey of families in the program covering 30 villages across eight states.

The authors tracked children’s height for age as an indicator of malnutrition. This measurement captures longer-term trends than a simple body mass index, Baylis explained. “The reason we care about stunting, this height for age, is that it’s associated with all sorts of bad long-run outcomes, including worse health outcomes and cognitive challenges, which affect education and income,” she said. It’s also a metric tracked around the globe.

A balanced diet

The researchers found that the average PDS expansion slashed stunting prevalence from 36% to 28.8%. “Frankly, we were surprised by the magnitude,” Baylis said. These effects were most pronounced in children aged zero to two years, a critical window during which a child’s development is highly sensitive to nutritional intake.

The benefits of PDS were particularly pronounced during periods of poor rainfall. These results suggest that a nutrition-sensitive safety-net like PDS supports food security, making childhood nutrition less sensitive to local climate shocks. It’s an aspect of the program they plan to investigate further in the future.

Still, the subsidized grains may supplant more nutritious foods with empty calories, critics have levied against PDS. But the survey responses revealed that those on the program actually had more diversified diets. It seemed that, rather than crowding out other foods, subsidizing dietary staples freed up money toward more nutritious

foods, particularly animal proteins like meat and dairy. This alone was large enough to account for the increase in children's heights.

Far-reaching benefits

The authors also observed a larger effect on household expenditure than could be explained by cost savings alone. They suspect that well-fed individuals could work more hours, boosting their wages. The additional security may also have enabled people to be more selective about which jobs they took. Notably, the team only saw this trend in people who were paid hourly, rather than salary. "The secondary effect on income meant that this program was more meaningful than just the value of the food itself," Baylis said.

This study shows that food transfers seem to provide many benefits, an important insight as economists and policymakers discuss different strategies, such as direct cash transfers. "Other papers have found that if you give people cash the prices of food go up in those areas," Baylis explained, "particularly the prices of more nutrient-dense foods, because there's more demand." But providing subsidized food can actually drive down food prices.

And a food program seems to keep participants focused on food. "People are keeping those savings within the food category in their budget," she said.

To the authors, it's now clear that the benefits of PDS extend well beyond just calories. "Social safety nets can have these big knock-on effects in terms of things like income, health and human capital," Baylis said. "Even if the safety net itself isn't huge, they can be really beneficial more broadly than we might have expected."

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