Slimming and greening the Chinese food system
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On August 29, 2022, a research team led by Prof. Wang Xiaoxi from the China Academy for Rural Development and School of Public Affairs of Zhejiang University, and Prof. Yuan Changzheng from the School of Public Health of Zhejiang University published a perspective titled "The triple benefits of slimming and greening the Chinese food system" in the journal Nature Food.

The research was carried out in collaboration with Dr. Benjamin Leon Bodirsky and Dr. Christoph Müller at the Potsdam Institute for Climate Impact Research, and Prof. Kevin Z. Chen from China Academy for Rural Development and School of Public Affairs of Zhejiang University. They explored the multiple impacts of the Chinese food system transition on the economy, health, and the environment over the past few decades, and proposed a "slim and green growth" strategy toward sustainable development.

The Chinese food system has undergone an unprecedentedly rapid transition with ongoing economic growth, impacting the economy, public health, and the environment. Within just two generations, China has achieved a dietary shift from carbohydrate-dominated to diversified diets rich in animal protein, sugar, fat, and processed industrial foods, contributing to a significant reduction in the prevalence of undernourishment.

 Nonetheless, the overall dietary quality in the Chinese population remains suboptimal. Insufficient intake of whole grains, nuts/seeds, fruits, vegetables, legumes, and fiber, and excessive consumption of sugar-sweetened beverages, red meat, and processed meat has led to increased health risks, declined agricultural employment and production, and increased environmental burdens such as greenhouse gas emissions.

A sustainable transformation of the food system is urgently needed to address the growing challenges of mismatches between food supply and demand, environmental degradation, rising rates of overnutrition and related chronic diseases, and increased risk of pathogen transmission.

Linking production and consumption across the overall food system and integrating macro-economic thoughts on sustainable transformation and cross-sectoral externalities with regard to health and the environment, the study provides a cross-sectoral overview of potential interventions in the Chinese food system and their synergistic effects on secondary targets.
Further, the researchers propose a "slim and green growth" strategy, where "slim growth" means relocating food waste and excess nutrition to more productive use and "green growth" suggests integrating the environmental, health, and economic costs into evaluation indicators. In line with the strategy, they also raised objectives and evidence-based policy implications for agricultural production, food processing and retailing, food consumption, public health systems, and the non-food economy.

In addition, the researchers call for future research on the food system to break down disciplinary barriers, move beyond the agriculture-centric perspective, and develop a systematic analytical framework that can assess the potential triple benefits of economics, health, and the environment to support evidence-based policy design. For example, policymakers may incorporate environmental criteria into nutrition guidelines, or environmental and nutrition targets into agricultural research and development funding schemes.

Fig. 3: The CFSD framework to visualize and analyze the food system indicators. Credit: Zhejiang University

To this end, they have initiated a data platform, the Chinese Food System Dashboard (CFSD) as a harmonized and curated basis for integrated analyses to explore food system sustainable pathways by considering synergies in a consistent manner. A unified framework will be further developed by connecting integrated assessment models to facilitate integrative analysis.


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