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Food research dichotomies

Simplistic oppositions help elicit conceptual differences and may set an analytical framework, but can hardly capture the complexity of food systems or aid the design of systemic solutions.

The term dichotomy comes from the Greek *dichotomía*, which means 'dividing in two'. The resulting parts of such a division should be jointly exhaustive (that is, everything must belong to one part or the other) and mutually exclusive (that is, nothing can belong simultaneously to both parts). Although it is hard to find a debate that satisfies both of these criteria when it comes to complex systems, food systems research is often framed that way. Examples concern land structure (small versus large farms), farming practices (conventional versus organic), scale of production (local versus global), strategies for nature protection (land sparing versus land sharing), best diets (plant-based versus animal-based), approaches for nutrition at scale (biofortification versus agricultural diversification), means of ensuring food availability (self-sufficiency versus trade), transformation pathways (technological fix versus behavioural change), and so on.

Comparisons are key for conceptualization and decision making, and can help us to understand the distinctive features as well as the advantages and disadvantages of different options. In scenario analysis, dichotomies also enable the exploration of extremes and set the boundaries of a system's operating space; that is the reason why the results of such scenario analyses must be communicated carefully to policymakers and other stakeholders who are more familiar with 'how-to' than 'what-if' thinking. The danger, however, is that dichotomies may create artificial siloes, lead to reductionism and distract us from the real issue at hand. There's obviously value in discussing the ecological impacts of producing meat type A or meat type B, but one shouldn't lose sight of the need to reduce meat consumption altogether.

Using dichotomies in a constructive way requires asking on a case-by-case basis how much advance they bring, as well as how they may shape a debate in the short and long run. In the words of digital sociologist Mark Carrigan, "The problem with dichotomies is not so much their appearance as their persistence, their tendency to prove sticky and our ensuing difficulty in dispensing with them once they have served their original purpose."

In a recently published paper, Wood and colleagues discussed the limitations of a 'global or local' perspective on food systems and how resilience principles can provide a more useful frame for designing food systems transformation (A. Wood et al. *Nat. Food* **4**, 22–29; 2023). In this issue of *Nature Food*, Rissing and colleagues use the tenets of data feminism to analyse the implications of US agricultural data practices for sustainable food systems research, revealing how some assumptions built into official national databases reflect and at the same time reinforce binary and simplistic framings.

In sum, dichotomies can help us categorize and conceptualize. The world presents itself in various shades of grey, and we cannot explore and map out every one of them. Yet, researchers' main contribution towards food security and sustainability is to generate and systematize knowledge that embraces food systems' complexities.

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