

Discussant comments on “Food systems and human health and nutrition: An economic policy perspective with a focus on Africa”

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I want to thank Wally Falcon and Roz Naylor for inviting me to discuss Professor Pinstrup-Andersen’s presentation. I also want to thank Professor Pinstrup-Andersen for an eye-opening discussion. His breadth of knowledge and experience in the field of food policy is remarkable, and his accomplishments, spread thin, would make the parents of an entire Stanford class very proud.

Few people have thought as deeply about food systems and how they do – or do not – achieve their goals. Professor Pinstrup-Andersen’s thesis addresses the relationships between food, nutrition, and health, with a particular emphasis on the African context and on the triple *global* threats of malnutrition, micronutrient deficiencies, and, at the other end of the spectrum, obesity. We heard about the stated importance of nutrition and health in the justification of food systems activities, and the revealed preferences of actual policies. While the alleviation of hunger and malnutrition is frequently used in justifying the design of food system policies, the pathway from the policies to improved nutrition is often vague and incompletely understood at best, or ignored and undermined at worse. We heard a dizzying exposition of the complex dynamics of food systems and their interaction with health and nutrition, through economic, social and demographic, and environmental forces. Much of what we heard serves to illustrate the poor alignment of food systems with adequate nutrition and health, and the potential contribution of such poorly aligned systems to the burden of poor nutrition and other health burdens. Professor Pinstrup-Andersen also makes the point that despite the thin evidence, the design of future policy that is better aligned with health and nutrition goals is possible through careful understanding of the complex dynamics of food systems. For example, the control of human interaction with livestock and enhancing gender-specific productivity.

I would like to expand on a few points that Professor Pinstrup-Andersen made. My hope is to highlight some areas with lingering questions that can be further addressed in the discussion. I am a physician, and when you give a kid a hammer, everything looks like a nail, so in addressing these points, I will start from a medical/biological perspective.

The first point I would like to expand on is the link between nutrition and health. The terms nutrition and health often come out in the same breath, and they *are* intimately related, but they are not the same. To say that my nutritional status is adequate means that all the component parts that make me up, including my human and non-human cells, are getting the necessary materials to sustain the biologic activities of life. My brain cells are getting glucose so my neurons can fire and make barely intelligible arguments, my muscle cells are getting protein to allow me to escape the bicycle stampede on Serra mall, and every cell in my body has enough building blocks to repair the damage of watching the vice-presidential debates. Adequate nourishment may be necessary, but it is not sufficient for being “healthy.” For example, the global burden of cancer, heart disease, and lung disease is rising even in populations with perfectly fine nutritional status. In a sense, nutrition sits between food and health, and my question is whether policies can target both at the same time.

This brings me to my second point about the complexity of the interaction of nutrition and health. Robert Fogel, the Nobel-prize winning economic historian, argues that perhaps the single most important factor contributing to the rising human longevity over the past 200-300 years is more and better food. Now, nutrition and health are not a perfect match. Here is an example: a critical mechanism by which foodstuffs we put in our mouths is then churned into longer and healthier life involves human immunity and the resilience that comes with a well-tuned system. When healthy, we do not usually pay it much attention, but every single moment of every single day it works to isolate and destroy threatening viruses, bacteria, and fungi. For example, we do not think of the common bread mold as a major health risk, but people with a weakened immune system – think of HIV or chemotherapy as extreme examples – commonly get overwhelming bread mold infections. Vaccinations, perhaps the most important life-saving innovation of all times, work through the immune system as well.

But here is what I want to say about the immune system: it is a highly adaptive and flexible system with enormous nutritional and energy requirements, and there is evidence to suggest that it continues to improve with food well into the zone we associate with overconsumption of food and associated health risks such as obesity and diabetes. When Fogel did his historical analyses, he estimated that mortality is lowest at a BMI – body-mass index – around 23. By most definitions, ideal BMI is between 20 and 25, while underweight or malnourished is below 20, overweight is 25 to 30, and obesity is a BMI upwards of 30.

But is slim really healthy? Historically, plump was considered healthy. My grandmother used to worry about what a skinny little boy I was. Not that I am a leviathan now, except in the eyes of my five-year-old, but now lean is in and I do not think even my grandmother would try to stuff me with chopped liver anymore. The epidemiological evidence now suggests that the bottom of the u-shaped BMI & mortality curve is creeping up, and people with a BMI of 26 or even 27 have the lowest mortality in many populations. And human longevity continues to creep up, despite, and alongside, our collectively increasing caloric consumption and waist size. So as we consider Professor Pinstrup-Andersen's important ideas about threading the needle of food policy to promote health while balancing malnutrition and obesity, this link between nutrition and health calls for more answers.

This is a good segue to another important point raised by Professor Pinstrup-Andersen: the evidence gap. Professor Pinstrup-Andersen brings up important points about the limitations of small-scale evaluations and the dearth of large-scale evaluations. In the medical world, for better or worse, randomized trials are at the top of the evidence hierarchy, but randomized trials are no longer the sole property of medicine. Over the past few years their use has exploded in such diverse areas as education, microfinance, democratic voter participation, and health insurance. The Mexican government subjected the entire country to a randomized evaluation with the expanded national health insurance program for the poor, Seguro Popular. These trials are complex, lengthy, and costly, but the larger the program, the greater the value that comes from having evidence to guide policy. In the development, health and education world, the initial trials were largely serendipitous: the confluence of a skilled investigator, a program that was about to be implemented, and decision-makers with the foresight and vision to see the value of a rigorous evaluation. Random assignment of textbooks to Kenyan children was used to evaluate the effect on test scores. Randomized treatment of intestinal worms in rural Kenya was used to test the

effect on rates of anemia and school achievement. Such small but solid empirical foundations expanded the frontier of what was known, and then led to a daisy chain of experiments that dramatically altered the process and content of policy design.

This brings me to the last issue I would like to bring up. Professor Pinstrip-Andersen makes many excellent policy suggestions that could improve health and nutrition, especially in Africa where too little food remains the dominant form of the food security issue. These policy suggestions include up-the-food-chain interventions such as infrastructure improvements, community-level interventions such as social marketing, and person-level interventions such as empowerment of women and girls. An important question, however, is *how* to implement these policies? In the health domain, policies aiming to directly improve health in Africa often face serious implementation challenges and have unforeseen and unintended consequences. In my area of expertise, HIV policy, some of the most ardent criticisms have been leveled at the best of intentions. Support for the control of HIV is said to crowd out other health priorities and funnel health care workers and resources away from the public health system towards better-paying aid-financed priorities. I am not a food policy expert, but I imagine that well-designed food policies in any country or community will need to work with local institutions, a complicated task even where governance systems are relatively transparent and functional. Here again I would ask whether rigorous evidence and trials have a role to play in the *advocacy* for policy implementation. With all the skepticism over the veracity of the scientific endeavor, good evidence and new knowledge have a way of changing our world, bit by bit. So any graduate students out there, consider this a call to action.

Preserving and improving human health and nutrition should be real goals of well-designed food systems. This is particularly true for improving under- and mal-nutrition, especially in Africa. But when it comes to human health, we do not really understand how food systems work their way under the skin. Real trials to illuminate such policy areas can provide knowledge, and the impetus, for future change. I will end here, but not before thanking Professor Pinstrip-Andersen once more for coming to Stanford and for his long-standing leadership and commitment to improving the health and well-being of the world's poor.