

Introduction to Issue on Malnutrition

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In poor countries, over a quarter of children under the age of five years are malnourished. The corresponding rate in rich countries is below 3%. Unfortunately, being undernourished as a child is associated with worse economic outcomes as an adult, largely a result of worse adult health. Thus, malnutrition among children creates one of the starkest discrepancies in individual well-being between rich and poor countries.

Yet, income growth does not seem to be the solution per se. Despite rapid economic growth in the past 20 years, South Asia, for example, continues to have inordinately high levels of undernourished children.

This issue brings together a set of papers on trends, causes, and potential policy solutions related to undernutrition in South Asia.¹ This region deserves special attention both because it accounts for the largest number of malnourished children in the world and because the rates of underweight and stunted children are puzzlingly high—higher than one would predict based on the region's income or performance on other health indicators such as infant mortality. To give one example, if we use demographic and health surveys from the past 10 years to compare India and Sub-Saharan Africa, we see the incidence of underweight children is roughly twice as high in India, even though its population is significantly richer. In focusing on such anomalies, we believe this issue will present evidence and draw conclusions with applicability to developing countries in regions beyond South Asia.

Three overview pieces discuss the links between economic growth and nutrition, and the patterns in malnutrition across South Asia. In examining the relationship between income and malnutrition, Harold Alderman emphasizes the importance of economic conditions while in utero and during early childhood for later well-being including vulnerability to chronic disease, with special attention to the implications for the optimal timing of interventions. Purnima Menon provides a broad and detailed summary of child health patterns across South Asian countries, within India, and across the lifecycle, and summarizes some of the main findings and open puzzles of nutrition literature. She also describes several policy avenues identified in this literature—and it is clear that, as yet, there is no

¹ All papers were subject to the journal's customary review process.

consensus on what policy options are likely to yield significant dividends. Finally, Alessandro Tarozzi examines how health patterns in India changed between 1998 and 2006, with a particular focus on how the trends differed for boys and girls. One of his main findings is that improvements in nutritional status were similar for boys and girls during this period, in contrast to the faster improvements for boys observed in the 1990s.

The next three papers examine the links between processes of development and nutritional outcomes in South Asia. The first two of these papers examine the implications of a 'quantity–quality trade-off' in influencing malnutrition outcomes. Robert Jensen explores the idea that, given such a trade-off, lower fertility may reduce malnutrition. He uses a novel causal identification strategy to examine this question in India, and finds that smaller family size leads to a large reduction in the incidence of underweight children (though not stunting). This finding opens up the possibility that decline in the total fertility rate may well portend a decline in malnutrition. Luojia Hu and Analia Schlosser present evidence consistent with this idea. Decline in fertility in South Asia has also been accompanied by a higher incidence of sex-selective abortions. It is likely that girls might now be born into smaller families and disproportionately into families with more favorable views of girls. They explore this hypothesis and find that there has been some closing of the gender gap in child health associated with the increased prevalence of sex-selective abortions.

Although the channel of fertility decline suggests that prosperity can improve nutritional outcomes, there are other forces at work in periods of economic growth that may well work in the opposite direction, exacerbating malnutrition. David Atkin's paper discusses one such channel: price volatility induced by trade openness. If individuals exhibit habit formation in the foods they prefer, then periods of increased price volatility can adversely affect nutritional intake and well-being.

The final four papers directly examine policy responses to malnutrition. A first idea is on the demand side: inform households about the importance of better nutrition. However, evidence on the success of such programs is relatively limited. Grant Miller and co-authors describe a set of randomized experiments on nutrition information provision in rural China that failed to influence malnutrition outcomes. Although information deficits may be more severe in South Asia, this evidence suggests that demand-side responses are unlikely to constitute a sufficient solution.

Turning to the supply side, one attractive solution is technological: food fortification. Biologists have identified micronutrient deficiency as one of the most concerning forms of malnutrition, with significant implications for mortality risk among children. Two papers in this issue explore the challenges associated with micronutrient fortification of food. Daniel Gilligan examines fortification of agricultural products, including evidence

from a randomized evaluation of an intervention to spur adoption of high-nutrition orange-fleshed sweet potatoes in Africa. He describes the challenges in using an agriculture-based strategy to meet a public health objective. James Berry, Priya Mukherjee, and Kartini Shastry examine fortification at a different point—at the time of food preparation—such as adding soy-based products to *dal*. An important conclusion of their review piece is that more research is needed to establish take-up and efficacy of different forms of fortified food provision.

Finally, it is clear that the success of any supply-side policy response in South Asia will depend, in part, on how well it addresses the associated governance challenge. Much of the recent literature on governance in the health sector suggests that absenteeism and low levels of motivation among health workers are significant constraints on effective service delivery. In this context, Katrina Kosec provides evidence from Sub-Saharan Africa which suggests that private sector participation in services that influence public health (in this case, clean water provision) may be a policy option worth evaluating.

Taken together, we hope that the papers in this conference issue highlight both the problem of malnutrition in South Asia in all its severity, and the opportunity for new research and policy reforms. It is unlikely that economic growth alone will close the malnutrition divide, and many believe countries and governments owe children a faster resolution to the problem than a rising standard of living will provide. While governments and international development agencies have identified an increasing array of policy options, the papers in this issue suggest that there is much to be learned about which of these policies are the most cost-effective and how to deliver them effectively to those at risk of malnutrition.