Book Review

Food Security and Food Scarcity: Why Ending Hunger Is So Hard

Charles P. Timmer

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Timmer provides an excellent review and synthesis of the challenges and solutions to reducing hunger and improving food security, importantly emphasizing the need to rely on markets together with government provision of public goods such as agricultural research and development (R&D) and rural roads and other infrastructure in order to generate agricultural production growth and stimulate structural transformation to make big improvements in food security. A wide range of readers will benefit from this book, first and foremost students of agriculture and economic development.

Timmer introduces key challenges to ending hunger and lays out policies to meet these challenges, importantly emphasizing the need to rely on markets together with government provision of public goods such as agricultural research and development and rural roads and other infrastructure in order to generate the necessary agricultural production growth to make serious inroads to hunger (Chapter 1, *Setting the Stage: Food Scarcity and Food Prices*; and Chapter 2, *Learning to Manage Food Security: A Policy Perspective*). Chapter 3 (*Understanding Food Security: Models and Numbers*) explores the dynamics of food security, including some simple analytics of food price spikes, key drivers of agricultural supply and demand, and trends for food security indicators. In Chapter 4 (*Structural Transformation as the Pathway to Food Security*), in many ways the most important in the book, Timmer shows the crucial role of agricultural development in overall economic growth and development by placing it in the context of structural transformation of the economy. As Johnston and Mellor (1961) show in their seminal article, given the overwhelming size of agriculture in the early stages of growth, increased agricultural growth driven by productivity and input growth is a driving force for overall economic development. Because of the size of the agriculture sector, agricultural productivity gains have economy-wide significance and the benefits of growth are distributed widely across income groups in rural areas. Rapid growth in agriculture frees up labor and capital for the nonfarm economy, maintains a downward pressure on the prices of food while keeping pace with growing food demand and key primary inputs for agroindustry, contributes to foreign exchange earnings (through reduced

agricultural imports and increased agricultural exports), and provides a buoyant domestic demand for nonfarm goods and services. These results of agricultural growth not only lead to rapid growth in the rural nonfarm economy, but also contribute importantly to the transformation of the urban-based economy. As this agriculture-led economic growth proceeds, it results in the structural transformation of the economy. As Timmer notes (p. 75) this process has four primary features: "a falling share of agriculture in economic output and employment; a rising share of urban economic activity in industry and modern services; migration of rural workers to urban settings; and a demographic transition in birth and death rates that always leads to a spurt in population before a new equilibrium is reached."

When structural transformation fails, however, achieving adequate progress on food security becomes difficult or impossible; this is the subject of Chapter 5 (*When Pro-poor Growth and Structural Transformation Fail*). Most of Sub-Saharan Africa has failed to achieve this transformation and adequate progress in improving food security, and much of South Asia has also lagged. The reasons for this include poor natural resource bases and geographical disadvantages that hold back agricultural productivity growth, weak institutions that lead to poor governance and bad policy choices, and "problems from being a latecomer in a world of increased global competitiveness." Timmer goes on to survey the ways to get growth moving, including making farms more competitive through agricultural technologies designed for more complex and varied environments, a gradual increase in farming size for more viable production systems that release labor to industrial and service sectors, modernization of value chains connecting farmers and consumers, and labor-intensive and competitive industrialization. All of this needs to be supported by sustained investment in public goods and services, including investment in human capital, and none of it will be easy.

Chapter 6 (*The Political Economy of Food Security: Food Price Volatility and Policy Responses*) includes a valuable behavioral perspective on the political economy of food security and also returns to a subject that is prominent throughout the book, a strong advocacy for food price stabilization as a fundamental driver of food security. Chapter 7 (*The Way Forward: The Time Horizon Matters*) concludes with an overview of key challenges ahead in the short-, medium-, and long-term.

One area where I take issue is the paramount importance that Timmer gives throughout the book to food price stabilization policy. In other writings, he has shown the importance of rice price stabilization policy implemented by the Bureau of Logistics (BULOG) in Indonesia during the 1970s and 1980s. But Timmer (1996) already noted that by the 1990s, it was less clear that rice price stabilization should be continued in Indonesia because of the decline in importance of rice in the economy and the increasing costs of Bulog. Food price stabilization policies have not been as effective elsewhere, even in Asian countries with heavy reliance on rice. Dorosh (2008) reviewed the experience of four countries (China, India, Bangladesh, and Madagascar) that have implemented explicit price stabilization and food security policies. Several policy lessons can be derived from his analysis, including the potential savings to be made through reliance on international trade rather than buffer stocks; the likelihood of efficiency gains from relying more heavily on market mechanisms; the need to maintain transparency of policies; and the high cost of public distribution programs, especially those that are not efficiently targeted. More generally, policies that target price stability, especially

through public grain reserves, have often had poor results, with consumers facing greater instability in food prices and availability when strategic reserves are used. Interventions that stabilize prices in the short-run, such as export bans, sudden changes in import tariffs, and subsidies to offset high import prices, weaken market incentives and market development. Policies should instead focus on long-run investments in sustainable market development and productivity growth and the use of market-based instruments and targeted safety nets to manage the risks of adverse food market outcomes. Such an approach can provide short-term relief from market shocks for the poor, while maintaining efficient long-run responses to market signals, thereby remaining compatible with longer-run market development (Byerlee, Jayne, and Myers 2006). A limited role could be played by national grain reserves aimed at ensuring minimal levels of consumption. If contemplated, these reserves should be designed to meet the needs of vulnerable consumers through nonmarket distribution in food security emergencies. Decisions about the size of reserves should reflect both the advantages of secure supplies and the substantial costs of acquisition, storage, and administration (Wright 2012).

Nutrition policy and safety nets are mentioned but deserve more attention. Complementing broad-based agricultural and economic growth, "targeted agricultural programs and social safety nets can have a large role in the mitigation of the negative effects of global changes and man-made and environmental shocks, in supporting livelihoods, food security, diet quality, and women's empowerment, and in achieving scale and high coverage of nutritionally at-risk households and individuals" (Ruel et al. 2013). Approaches that complement efforts to raise agricultural productivity and food supply globally include social protection policies aimed at enhancing poor households' income and access to high-quality diets (Ruel et al. 2013). Gentilini (2009) summarizes how social protection can boost economic growth and food security: investments to enhance and protect human capital can improve nutrition among children, enhancing their earning potential as adults, since nutrition affects cognitive development, school attendance, and educational attainment, and physical productivity. Social protection, by providing additional security, can enhance people's ability to manage risks and reduce the sources of such risks. The provision of transfers may also help to alleviate some households' liquidity constraints, and partially addressing financial market failures. The first 1,000 days of life, a key phase in brain growth and development, is a period of peak susceptibility to nutritional failures. Targeted interventions are essential to protect children during this period from both nutritional and developmental risks. Leveraging health, agriculture, and social safety net platforms for joint early child development and nutrition programming during the first 1,000 days of life would likely have high payoffs. The comprehensive review of nutrition-sensitive interventions and programs by Ruel et al. (2013) further analyzes the effectiveness of alternative interventions.

Given the importance of markets that Timmer rightly stresses, more attention should also be paid to the pernicious effects of input subsidies. Government subsidies are often justified as providing public goods or counteracting the impact of market failures. But instead, governments often intervene to provide large subsidies to private goods (such as fertilizer, energy, and credit), displacing the supply of public goods (research, roads, and education). Together with reducing the supply of infrastructure and other public goods, public expenditures on subsidies often result in under-

investment in R&D, and inadequate sanitary and environmental protection. Lopez and Galinato (2007) show that reducing the share of subsidies to private goods in the government's budget therefore has a large and significant positive impact on rural per capita income, reduces undesirable environmental effects associated with output growth, and contributes to poverty reduction.

Fertilizer subsidies have been among the most common and most expensive subsidies in agriculture, intended to increase fertilizer use, crop production, and income. Ricker-Gilbert, Jayne, and Shively (2013) review the evidence on fertilizer subsidies in Africa, finding some evidence of short-term positive increases in maize production from fertilizer subsidies in Malawi, but these increases were small relative to the size and scope of Malawi's fertilizer subsidy program. Moreover, the impacts of greater maize production must be weighed against the unintended effects of the subsidies, including the displacement of other crops by maize, enormous fiscal costs, crowding out of the private seed and fertilizer sectors, and the impact of reduced crop diversification on agricultural sustainability, smallholder vulnerability, and overall nutrition (Ricker-Gilbert, Jayne, and Shively 2013).

Given the negative effects of subsidies, are there appropriate uses for them? Small-scale "smart" fertilizer subsidies to farmers *may* be cost effective in stimulating farmers to adopt and utilize fertilizers appropriately together with new production technology. Temporary subsidies during the early stage of fertilizer adoption may be effective in overcoming the fixed costs related to adoption of new technology and in inducing farmer experimentation and learning during periods of rapidly changing technological potential. Such temporary subsidies should be phased out as adoption and appropriate use of fertilizer become widespread. But the phase-out of subsidies becomes difficult once they are in place and develop political support. Reduction or elimination of subsidies and investment instead in productivity-enhancing agricultural R&D and rural infrastructure would have high payoffs.

Timmer is aiming for a number of target audiences, as he states in Chapter 1. These include proponents of agricultural productivity growth who do not see the more strategic issues of structural transformation; those who recognize the importance of structural transformation, but not the essential role of agriculture; trade economists; non-government organizations and think tanks; and students. All of these target groups can gain from this book, and as Timmer notes, the first and foremost beneficiaries will be students. This review draws upon the four-volume set, Food Security (Rosegrant 2014).

REFERENCES

Byerlee, D., T.S. Jayne, and R. Myers. 2006. "Managing Food Price Risks and Instability in a Liberalizing Market Environment: Overview and Policy Options." *Food Policy* 31 (4): 275–287.

Dorosh, P.A. 2008. "Food Price Stabilization and Food Security: The International Experience." *Bulletin of Indonesian Economic Studies* 44 (1): 93–114.

Gentilini, U. 2009. "Social Protection in the Real World: Issues, Models, and Challenges." *Development Policy Review* 27 (2): 147–166. doi: 10.1111/j.1467-7679.2009.00440.x

Johnston, B.F., and J.W. Mellor. 1961. "The Role of Agriculture in Economic Development." *American Economic Review* 51: 566-593.

López, R., and G. Galinato. 2007. "Should Governments Stop Subsidies to Private Goods? Evidence from Rural Latin America." *Journal of Public Economics* 91 (5): 1071–1094.

Ricker-Gilbert, J., T.S. Jayne, and G. Shively. 2013. "Addressing the Wicked Problem of Input Subsidy Programs in Africa." *Applied Economic Perspectives and Policy* 35 (2): 322–340.

Rosegrant, M.W. (ed.). 2014. *Food Security*. Thousand Oaks, CA, USA: SAGE Publications Ltd. http://ifpri.worldcat.org/title/food-security/oclc/871340599

Ruel, M.T., H. Alderman, and the Maternal and Child Nutrition Study Group. 2013. "Nutrition-Sensitive Interventions and Programmes: How Can They Help to Accelerate Progress in Improving Maternal and Child Nutrition?" *The Lancet* 382 (9851): 536–551. http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2813%2960843-0/abstract?cc=y=

Timmer, C.P. 1996. "Does Bulog Stabilize Rice Prices in Indonesia? Should it Try?" *Bulletin of Indonesian Economic Studies* 32 (2): 45–74. doi: 10.1080/00074919612331336938

Wright, B.D. 2012. "International Grain Reserves, and Other Instruments to Address Volatility in Grain Markets." *World Bank Research Observer* 27 (2): 222–260.