



END HUNGER AND UNDERNUTRITION



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IFPRI PUBLICATIONS RELATED TO NUTRITION IN ETHIOPIA

The International Food Policy Research Institute (IFPRI) began research activities in Ethiopia in the 1980s to assess the root causes of drought-related food-production shortages and support adoption of appropriate policy responses. IFPRI's rigorous empirical research contributed to a broader understanding of economic development processes in Ethiopia and built capacity to conduct such research on a national scale. Working with many long-standing partners, IFPRI evaluated strategies for achieving sustainable agricultural growth, investment in agricultural research, the provision of safety nets to strengthen resilience, prioritization of nutrition interventions for women and children, property rights, and management of natural resources, among other goals. Evidence from this and other work informed programs and initiatives to improve food and nutrition security for vulnerable people.

The Ethiopia Strategy Support Program (ESSP) is a collaborative program undertaken by IFPRI and the Policy Studies Institute (PSI). In order to support inclusive and sustainable growth and transformation in Ethiopia, the program works closely with local partners to assure that relevant research evidence is available for improved decision-making and that local capacity is gradually formed so that the increasingly complex questions in Ethiopia can be tackled in a meaningful way by the relevant government institutions and other concerned local partners. This is achieved by doing analysis on important topics in the country, focusing on four major issues:

1. **Transforming agriculture sustainably**
2. **Reducing malnutrition**
3. **Improving markets, value chains, and trade**
4. **Building resilience to climate change and drought-induced crisis situations**

The European Union, together with the United States Agency for International Development (USAID) and the United Kingdom's Department for International Development (DFID), is funding this program in its current phase, which began in 2017 and will run until the end of 2020.

A selection of the most recent research outputs can be found below (2016–2019). For more information, review the IFPRI Compact2025 website (www.compact2025.org), the IFPRI website (www.ifpri.org), the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) website (a4nh.cgiar.org/), and the HarvestPlus website (www.harvestplus.org). Other ESSP resources can be found on the ESSP webpage (essp.ifpri.info).



1. Abate, Gashaw T.; Dereje, Mekdim; Hirvonen, Kalle; and Minten, Bart. 2019. **Geography of public service delivery in rural Ethiopia.** *ESSP Working Paper 133*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Remote areas are often characterized by lower welfare outcomes due to economic disadvantages and higher transaction costs for trade. But their worse situation may also be linked to worse public service delivery. Relying on large household surveys in rural Ethiopia, we explore this by assessing the association of two measures of remoteness – (1) the distance of villages and primary service centers to district capitals and (2) the distance of households to service centers (the last mile) – with public service delivery in agriculture and health sectors. In the agriculture sector, we document statistically significant and economically meaningful associations between exposure to agriculture extension and the two measures of remoteness. For health extension, only the last mile matters. These differences between the two sectors could be due to the fact that more remote villages tend to have fewer agriculture extension workers, who also put in fewer hours than their peers in more connected areas. This does not apply in the health sector. These findings provide valuable inputs for policymakers aiming to improve inclusiveness in poor rural areas.

2. Argaw, Alemayehu; Huybregts, Lieven; Wondafrash, Mekitie; Kolsteren, Patrick; Belachew, Tefera; Worku, Berhanu N.; Abessa, Teklu G.; and Bouckaert, Kimberley P. 2019. **Neither n-3 long-chain PUFA supplementation of mothers through lactation nor of offspring in a complementary food affects child overall or social-emotional development: A 2 × 2 factorial randomized controlled trial in rural Ethiopia.** *Journal of Nutrition* 149 (3): 505–512. [Link](#)

We assess the efficacy of fish-oil supplementation through lactation or complementary food supplementation on the development of children in rural Ethiopia, and find that it does not affect overall or social-emotional development of children aged 6–24 months in a low-income setting.

3. Bachewe, Fantu Nisrane; and Minten, Bart. 2019. **The rising costs of nutritious foods: The case of Ethiopia.** *ESSP Working Paper 134*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Costs of healthy diets are worryingly rising in a number of developed and emerging economies. However, less is known on these costs for developing countries. Using price data from a large number of markets in Ethiopia, we find that real prices of all nutritionally rich food groups increased significantly (between 19 and 62 percent) over the period 2007–2016. This contrasts with (1) staple crops (grains, roots, and tubers), which did not show any price increase, and (2) oils, fats, and sugar, the prices of which decreased substantially. Using detailed nationwide datasets and relying on time series methods, we link these price increases to changes in local markets, demand and supply factors, transaction costs, and international trade. We find that prices of nutritionally rich food groups – compared to cereals – are relatively less affected by international trade and exchange rate changes but more so by rapidly increasing local and city demand. This rising demand is likely due to recent income growth and rapid urbanization and the high-income elasticities for nutritious foods in Ethiopia. Moreover, we find that local production changes affected prices of nutritious items little, but national price rises were found to have been significantly linked with food price rises in commercial clusters in the country. Changes in transaction costs – fuel and transport costs – explained relatively little of the observed food price changes.

4. Baye, Kaleab; Hirvonen, Kalle; Dereje, Mekdim; and Remans, Roseline. 2019. **Energy and nutrient production in Ethiopia, 2011–2015: Implications to supporting healthy diets and food systems.** *PLOS One* 14 (3): e0213182. [Link](#)

We assess Ethiopia’s national agriculture sector’s role in supporting healthy diets in the country. National food production increased dramatically over 2011–2015 to supply more than 3,000 calories per capita. However, this production growth comes primarily from the cereal sector and at the expense of other food groups, and has led to a decrease in production

diversity. These findings imply that Ethiopia needs to sustain production increases to feed the rapidly growing population but more emphasis should be given to diversification to support healthy and nutritionally diversified diets.

5. Baye, Kaleab; Choufani, Jowel; Mekonnen, Dawit Kelemework; Bryan, Elizabeth; Ringler, Claudia; Griffiths, Jeffrey K.; and Davies, Emma. 2019. **Irrigation and women's diet in Ethiopia: A longitudinal study.** *IFPRI Discussion Paper 1864*. Washington, DC: International Food Policy Research Institute (IFPRI). [Link](#)

Some agricultural practices, such as irrigation, have the potential to buffer seasonal dietary gaps and thus improve diets, particularly for subsistence farmers but also for rural and urban households that purchase irrigated produce from local markets. While the seasonality of households and children's diets is well documented, little is known about the seasonality of women's diets and the influence of irrigation. Using longitudinal data from Ethiopia, this study characterized women's diet over time and evaluated the potential implications of seasonality and irrigation on women's diet. Women's dietary diversity was low (3–4 out of 10 food groups) and exhibited high seasonal variability ($P < 0.05$). Diets were predominantly plant-based, with little consumption of nutrient dense foods, such as fruits and animal-source foods. High seasonal variability in energy, protein, vitamin C, calcium, iron, and zinc intakes were observed ($P < 0.01$). Irrigators were more likely to meet the minimum dietary diversity for women (MDDW), had higher energy and calcium intake, and lower prevalence of anemia, than women from non-irrigating households ($P < 0.05$). No cases of malaria were reported from the three rounds of screening. Our preliminary findings suggest that there is high seasonal variation in women's diet, but this can be partly offset by irrigation practices.

6. Choudhury, Samira; Headey, Derek D.; and Masters, William A. **First foods: Diet quality among infants aged 6–23 months in 42 countries.** *Food Policy*. Article in press. First published online on September 13, 2019. [Link](#)

Diet quality is closely linked to child growth and development, especially among infants aged 6–23 months who need to complement breastmilk

with the gradual introduction of nutrient-rich solid foods. This paper links Demographic and Health Survey data on infant feeding to household and environmental factors for 76,641 children in 42 low- and middle-income countries surveyed in 2006–2013, providing novel stylized facts about diets in early childhood. Multivariate regressions examine the associations of household socioeconomic characteristics and community level indicators of climate and infrastructure with dietary diversity scores (DDS). Results show strong support for an infant-feeding version of Bennett's Law, as wealthier households introduce more diverse foods at earlier ages, with additional positive effects of parental education, local infrastructure, and more temperate agro-climatic conditions. Associations with consumption of specific nutrient-dense foods are less consistent. Our findings imply that while income growth is indeed an important driver of diversification, there are strong grounds to also invest heavily in women's education and food environments to improve diet quality, while addressing the impacts of climate change on livelihoods and food systems. These results reveal systematic patterns in how first foods vary across developing countries, pointing to new opportunities for research toward nutrition-smart policies to improve children's diets.

7. Dorosh, Paul A.; and Minten, Bart. 2019. **Rising cereal prices in Ethiopia: An assessment and possible contributing factors.** *ESSP II Research Note 73*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Nominal cereal prices in Ethiopia in July 2019 were significantly higher than the year before – maize prices had risen by 32 percent; sorghum by 39 percent; teff by 35 percent; and wheat by 2 percent. Moreover, there is anecdotal evidence that nominal cereal prices have increased rapidly since. A number of factors help explain this pattern: Overall inflation has been high both for food and nonfood items. This general high inflation is linked to macro factors related to broad money and credit growth; overall changes in prices for inputs, labor, and transport have important impacts on production costs for agricultural products, thereby putting upward pressure on prices. However, controlling for inflation,

real prices are close to average real prices over the last 10 years, indicating little change in supply relative to demand; seasonality is important in Ethiopian cereal markets, with higher prices mostly in August and September, just before the new Meher harvest comes in. The current (September 2019) high prices for food are partly a seasonal phenomenon; there are no signs of increased real marketing costs. Nonetheless, given their importance for food security, close monitoring and assessments of the functioning of Ethiopia's food markets remain necessary.

8. Headey, Derek; Hirvonen, Kalle; Hoddinott, John; and Stifel, David. 2019. **Rural food markets and child nutrition.** *American Journal of Agricultural Economics* 101 (5): 1311–1327. [Link](#)

Child dietary diversity is poor in much of rural Africa and developing Asia, prompting significant efforts to leverage agriculture to improve diets. However, growing recognition that even very poor rural households rely on markets to satisfy their demand for nutrient-rich nonstaple foods warrants a much better understanding of how rural markets vary in their diversity, competitiveness, frequency, and food affordability, and how much such characteristics are associated with diets. This article addresses these questions using data from rural Ethiopia. Deploying a novel market survey in conjunction with an information-rich household survey, we find that children in proximity to markets that sell more nonstaple food groups have more diverse diets. However, the association is small in absolute terms; moving from three nonstaple food groups in the market to six is associated with an increase the number of nonstaple food groups consumed by ~0.27 and the likelihood of consumption of any nonstaple food group by 10 percentage points. These associations are similar in magnitude to those describing the relationship between dietary diversity and household production diversity: moreover, for some food groups, notably dairy, we find that household and community production of that food is especially important. These modest associations may reflect several specific features of our sample which is situated in very poor, food-insecure localities where even the relatively better off are poor in absolute terms and where, by international standards, relative prices for nonstaple foods are very high.

9. Kim, Sunny S.; Nguyen, Phuong H.; Tran, Lan M.; Abebe, Yewelsew; Asrat, Yonas; Tharaney, Manisha; and Menon, Purnima. 2019. **Maternal behavioral determinants and livestock ownership are associated with animal source food consumption among young children during fasting in rural Ethiopia.** *Maternal and Child Nutrition* 15: e12695. [Link](#)

This study investigates the factors influencing animal-sourced foods (ASF) consumption among young children during the Lent fasting period in western Amhara, Ethiopia. Mothers with strong knowledge, beliefs, and social norms about feeding children ASFs during fasting had higher odds of having children who consumed ASFs. Cow ownership was also associated with ASF consumption. Our findings corroborate the importance of maternal behavioral determinants related to feeding ASFs to children during fasting on ASF consumption via household availability, and the positive influence of livestock ownership.

10. Kim, Sunny S.; Nguyen, Phuong H.; Yohannes, Yisehac; Abebe, Yewelsew; Tharaney, Manisha; Drummond, Elizabeth; Frongillo, Edward A.; Ruel, Marie T.; and Menon, Purnima. 2019. **Behavior change interventions delivered through interpersonal communication, agricultural activities, community mobilization, and mass media increase complementary feeding practices and reduce child stunting in Ethiopia.** *Journal of Nutrition*, 149(8): 1470–1481. [Link](#)

This study investigates the factors influencing animal-sourced foods (ASF) consumption among young children during the Lent fasting period in western Amhara, Ethiopia. Mothers with strong knowledge, beliefs, and social norms about feeding children ASFs during fasting had higher odds of having children who consumed ASFs. Cow ownership was also associated with ASF consumption. Our findings corroborate the importance of maternal behavioral determinants related to feeding ASFs to children during fasting on ASF consumption via household availability, and the positive influence of livestock ownership.

11. Melesse, Mequanint B.; Van den berg, Marrit; de Brauw, Alan; and Abate, Gashaw T. 2019. **Understanding urban consumers' food choice behavior in Ethiopia: Promoting demand for healthy foods.** *ESSP Working Paper 131*.

Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

This paper documents descriptive findings on consumer food purchasing and consumption choices in Addis Ababa, Ethiopia. It shows that sample households face important dietary gaps with insufficient consumption of nutrient-dense vegetables, animal-sourced foods, and fruits. Consumption of ultra-processed foods increases with income and may become a pressing health concern as incomes rise. Most respondents make food choices based on their health and food safety concerns, but few consider the nutritional value of food when purchasing it. Consumers appear to have reasonable nutritional knowledge, but they have limited knowledge on the nutrient content of specific foods and the causes of obesity. Labeling would not be an effective way to increase nutritional knowledge as most respondents have limited understanding of the information that labels provide. Rather, most respondents trust the information provided by health professionals over other sources.

12. Minten, Bart; Tamru, Seneshaw; and Reardon, Thomas. 2019. **Post-harvest losses in rural-urban value chains: Evidence from Ethiopia.** *ESSP Working Paper 135*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

We study post-harvest losses (PHL) in the important and rapidly growing rural-urban value chains in Africa. We analyze self-reported PHL from different value chain agents (farmers, wholesale traders, processors, and retailers) based on unique large-scale data sets for two major commercial commodities, the storable staple teff and the perishable liquid milk, in Ethiopia. PHL in the most prevalent value chain pathways for teff and milk amount to between 2.2 and 3.3 percent and 2.1 and 4.3 percent of total produced quantities respectively. We complement these findings with primary data of urban food retailers (for more than 4,000 commodities). Estimates of PHL from this research are overall found to be significantly lower than is commonly assumed. We further find that the emerging modern retail is characterized by half the level of PHL compared to traditional retail, likely due to more stringent

quality requirements at procurement, sales of more packaged—and therefore protected—commodities, and better refrigeration, storage, and sales facilities. The expected further expansion of modern retail in these settings might therefore lead to a lowering of PHL in the value chain, at least at the retail level.

2018

13. Abegaz, Getachew Ahmed; Hassen, Ibrahim Worku; and Minten, Bart. 2018. **Consumption of animal-source foods in Ethiopia: Patterns, changes, and determinants.** *ESSP Working Paper 113*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

This study assesses animal-sourced food (ASF) consumption patterns and changes over 1995/96 to 2010/11. ASF consumption is low overall in Ethiopia, with per capita ASF consumption increasing slowly due to relative price increases of ASF over the 15-year period. Expenditures on dairy products make up almost half of all ASF expenditures, and the share of ASF expenditures in the total food budget for the richest quintile is three times higher than for the poorest. Urban residents spend twice as much on ASF per capita as rural residents, and there is significant variation over the year in ASF consumption, seemingly associated with religious customs. We further find strong effects of prices and incomes on ASF consumption levels. For example, we find that a doubling of prices reduces dairy consumption by about half. These findings suggest overall that keeping prices low and stimulating further income increases are important factors to improve low ASF consumption in Ethiopia.

14. Bachewe, Fantu Nisrane; Minten, Bart; Taffesse, Alemayehu Seyoum; Pauw, Karl; Cameron, Alethia; and Endaylalu, Tirsit Genye. 2018. **Farmers' grain storage and losses in Ethiopia: Measures and associates.** *ESSP Working Paper 115*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

A relatively large share of grain production is stored by farm households themselves, mainly for own consumption. The paper also shows that storage technologies are rudimentary. Farmers' self-reported

storage losses are on average 4 percent of all grain stored and 2 percent of the total harvest. Efforts to scale up the adoption of improved storage technologies to reduce storage losses at the farm level should take into consideration heterogeneity by region, socioeconomic variables, crop, and humidity, all of which contribute to a variation in storage loss.

15. Gebru, Mestawet; Remans, Roseline; Brouwer, Inge; Baye, Kaleab; Melesse, Mequanint Biset; Covic, Namukolo; Habtamu, Fekadu; Abay, Alem Hadera; Hailu, Tesfaye; Hirvonen, Kalle; Kassaye, Tarik; Kennedy, Gina; Lachat, Carl; Lemma, Ferew; McDermott, John; Minten, Bart; Moges, Tibebu; Reta, Fidaku; Tadesse, Eneye; Taye, Tamene; Truebswasser, Ursula; and Vandenberg, Marrit. 2018. **Food systems for healthier diets in Ethiopia: Toward a research agenda.** *IFPRI Discussion Paper 1720*. Washington, DC: International Food Policy Research Institute (IFPRI). [Link](#)

In this paper, we identify research streams to support the operationalizing of such food systems approaches in Ethiopia. We identify 25 priority research questions, categorized into three main areas: diagnosis and foresight research, implementation research, and institutional and policy processes. The paper contextualizes the case of Ethiopia within global food systems thinking and thereby aims to stimulate in- and cross-country learning.

16. Headey, Derek D.; Hirvonen, Kalle; and Hoddinott, John F. 2018. **Animal sourced foods and child stunting.** *American Journal of Agricultural Economics* 100 (5): 1302–1319. [Link](#)

Stunting in early childhood is suggested to be associated with low intakes of animal-sourced foods (ASFs). We document distinctive patterns of ASF consumption among children in different regions and find evidence of strong associations between stunting and ASF consumption; consuming multiple ASFs is more advantageous than any single ASF. We explore why ASF consumption is low but also so variable across countries. Non-tradable ASFs (fresh milk, eggs) are a very expensive source of calories in low-income countries and caloric prices of these foods are strongly associated with children's consumption patterns. The strong influence of prices implies an important role for agricultural policies—in production, marketing, and trade—to improve the accessibility and affordability of ASFs in poorer countries.

17. Hirvonen, Kalle; and Headey, Derek. 2018. **Can governments promote homestead gardening at scale? Evidence from Ethiopia.** *Global Food Security* 19 (2018): 40–47. [Link](#)

Low intake of fruits and vegetables is a major cause of micronutrient deficiencies in the developing world. We analyze a large and novel survey on the adoption of a nationwide homestead gardening (HG) program implemented by the Ethiopian government and find that better market access encourages HG adoption; so too does greater public promotion of HGs, but only in more water-abundant ecologies.

18. Hirvonen, Kalle; Sohnesen, Thomas Pave; and Bundervoet, Tom. 2018. **Impact of Ethiopia's 2015 drought on child undernutrition.** *ESSP Working Paper 114*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

In 2015, Ethiopia experienced one of its worst droughts in decades. Using nationally representative data from before and after this event, we find that this drought did not lead to widespread increases in child undernutrition rates in the country, except in areas with limited road networks. Moreover, the share of households receiving humanitarian aid doubled in drought-affected areas. Together, these findings highlight the role of road infrastructure in contributing to resilience as well as the efficiency of the humanitarian system in delivering and targeting aid in the country.

19. Hirvonen, Kalle; Wolle, Abdulazize; and Minten, Bart. 2018. **Affordability of fruits and vegetables in Ethiopia.** *ESSP II Research Note 70*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Fruit and vegetable (FV) consumption is very low in Ethiopia, and high relative prices of FVs could be an important constraint. We assess the affordability of FVs in Ethiopia and find that the average Ethiopian household would have to spend 11 percent of their income to meet the international recommendation of two servings of fruits and three servings of vegetables per person per day. This share is more than 2.5 times higher for households in the poorest quintile. More investments and research attention to the production

of fruits and vegetables is urgently needed to improve supplies and, hence, their affordability.

20. Ledlie, Natasha; Alderman, Harold; Leroy, Jef L.; and You, Liangzhi. 2018. **Rainfall shocks are not necessarily a sensitive early indicator of changes in wasting prevalence.** *European Journal of Clinical Nutrition* 72: 177–178. [Link](#)

This study explores whether deviation in rainfall in Ethiopia, a drought prone country, is a sensitive indicator of future increases in wasting. Around 12 percent of children 0–23 months were wasted, but we found no consistent association between the rainfall shock variables and child weight-for-height Z-scores. The results indicate that monitoring rainfall does not provide a practical early warning to use for scaling up financing and management of preventative measures without additional information to increase precision.

21. Masters, William A.; Rosettie, Katherine L.; Kranz, Sarah; Danaei, Goodarz; Webb, Patrick; Mozaffarian, Dariush; and the Global Nutrition and Policy Consortium. 2018. **Designing programs to improve diets for maternal and child health: Estimating costs and potential dietary impacts of nutrition-sensitive programs in Ethiopia, Nigeria, and India.** *Health Policy and Planning* 33 (4): 564–573. [Link](#)

This study estimates the potential costs and impacts on child dietary intake of 12 nutrition-sensitive programs in Ethiopia, Nigeria, and India. These include conditional livestock and cash transfers, media and education, complementary food processing and sales, household production, and food pricing programs. Across the 12 programs, total cost per child reached ranged very widely. When impacts were assessed, the largest dietary improvements were for iron and zinc intakes from a complementary food production program in Ethiopia, vitamin A intake from a household animal and horticulture production program in Nigeria, and animal protein intake from a complementary food processing program in Nigeria. These results add substantial value to the limited literature on the costs and dietary impacts of nutrition-sensitive interventions targeting children in resource-limited settings.

22. Minten, Bart; Dereje, Mekdim; Bachewe, Fantu Nisrane; and Tamru, Seneshaw. 2018. **Evolving food systems in Ethiopia: Past, present and future.** *ESSP Working Paper 117*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Ethiopia's food systems are rapidly evolving, being driven by major contextual changes including high population growth, rapid urbanization, infrastructure investments, and income growth. First, important changes in diets are noted with higher calorie consumption, a declining share of starchy staples, an increasing share of high-value products such as animal-sourced foods and fruits and vegetables, and the emergence of processed convenience foods and greater out-of-home food consumption.

Second, agricultural production is intensifying and modernizing. There is an increasing emphasis on commercial farms, mostly aiming to tap into agricultural export markets. Meanwhile, smallholders are facing increasing land constraints, seen in declining farm sizes and younger farmers being more reliant on land rental markets.

Third, agricultural supply chains are expanding and are an increasing source of employment. Agricultural commercial surpluses are rapidly growing, increasing reliance on markets by both producers and consumers. We also see the start of the use of modern food marketing methods and technologies, including mobile phones, a commodity exchange, and an incipient modern retail sector and food service sector. Markets are found to be better integrated with spatial and seasonal price margins becoming smaller. However, we also see an increase of the prices of nutritious foods. Ethiopia's reliance on international trade has, however, grown significantly over the last 15 years, and Ethiopia has been a net agricultural exporter in value terms for all but one year over the last decade.

These transformations in Ethiopia's food systems are expected to continue at a rapid pace given similar even more pronounced changes going forward, especially for the growth of commercial food markets. This will have enormous implications for farming and for the required development of efficient private-led agricultural input supply, logistics, trading, and distribution sectors.

23. Minten, Bart; Habte, Yetimwork; Tamru, Seneshaw; and Tesfaye, Agajie. 2018. **Transforming agri-food systems in Ethiopia: Evidence from the dairy sector.** *ESSP Working Paper 129*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

We analyze transformation patterns in the dairy value chain supplying Addis Ababa, Ethiopia. Over the last decade, we note a rapid increase in expenditures on dairy products by urban consumers, especially among the better-off. Relatedly, the number of dairy processing firms in Ethiopia tripled over the same period, and the number of dairy traders increased rapidly as well. Upstream, at the production level, we find improved access to livestock services, higher adoption of cross-bred cows, a shift from grazing to commercial feeds, an increase in milk yields, expanding liquid milk markets, a sizable urban farm sector supplying almost one-third of all liquid milk consumed in the city, and an up-scaling process with larger commercial dairy farms becoming more prevalent. However, average milk yields are still low and not all dairy farmers are included in this transformation process. Small farms with dairy animals as well as those in more remote areas benefit less from access to services and adopt these modern practices less. For these more disadvantaged farmers, stagnation in milk yields and even declines are observed.

24. Passarelli, Simone; Mekonnen, Dawit Kelemework; Bryan, Elizabeth; and Ringler, Claudia. 2018. **Evaluating the pathways from small-scale irrigation to dietary diversity: Evidence from Ethiopia and Tanzania.** *Food Security* 10 (4): 981–997. [Link](#)

We explored the potential for small-scale irrigation to contribute to improved diets in Ethiopia and Tanzania, and identify the pathways through which irrigation affects dietary diversity as measured by the Household Dietary Diversity Score. Econometric results showed that irrigation leads to better household dietary diversity mainly through the pathway of increasing household incomes only in the case of Ethiopia, and not in Tanzania. Other factors, such as gender of the household head and having off-farm income, also influence dietary diversity in Ethiopia. These findings suggest that the potential for irrigation to influence diets is highly context-specific.

2017

25. Abay, Kibrewossen; and Kalle Hirvonen. 2017. **Does market access mitigate the impact of seasonality on child growth? Panel data evidence from North Ethiopia.** *Journal of Development Studies* 53 (9): 1414–1429. [Link](#)

Seasonality in agricultural production continues to shape intra-annual food availability and prices in low-income countries. This study attempts to quantify seasonal fluctuations in children's age and height adjusted weights in northern Ethiopia. While children located closer to local food markets are better nourished compared to their counterparts residing in more remote areas, their weights are also subject to considerable seasonality. Further analysis provides evidence that children located closer to food markets consume more diverse diets than those located farther away but the content of the diet varies across seasons. This leads us to conclude that households located near these food markets are not able to fully insulate their children from seasonal weight fluctuations.

26. Bachewe, Fantu Nisrane; and Headey, Derek D. 2017. **Urban wage behaviour and food price inflation in Ethiopia.** *Journal of Development Studies* 53 (8): 1207–1222. [Link](#)

Theoretically, increases in food prices could benefit the poor by increasing the demand for unskilled labour, and hence their wages. This paper tests this hypothesis in urban Ethiopia. We exploit a unique panel of monthly price and wage data from 111 urban markets to first construct welfare-relevant measures of real wages, before employing various panel estimators to formally test wage-food price integration. We find moderate rates of long-run adjustment to increases in food prices, but that adjustment is very slow. This implies highly adverse short-run welfare impacts of higher food prices on the urban poor.

27. Bachewe, Fantu Nisrane; Minten, Bart; and Yimer, Feiruz. 2017. **The rising costs of animal-source foods in Ethiopia: Evidence and implications.** *ESSP Working Paper 108*. [Link](#) Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI).

We analyze animal-sourced foods (ASF) price patterns in the last decade (2007–2016) in 116 urban retail

markets in Ethiopia. We document important seasonal and spatial patterns and we find, worryingly, that real prices of ASF have been increasing in the last decade by between 32 to 36 percent for three major ASF—milk, eggs, and meat. Similar price increases are noted in rural and urban areas and for tradable and nontradable ASFs. This price trend is in contrast with staple cereals for which real prices stayed at similar levels over the past decade. As we estimate that a price increase of this magnitude would reduce consumption of ASF by approximately 25 percent, holding other things constant, it seems that more investments and attention to the production of ASF and the livestock sector are needed to reduce ASF prices and increase their consumption in Ethiopia.

28. Berhane, Guush; Hoddinott, John F.; and Kumar, Neha. 2017. **The impact of Ethiopia's Productive Safety Net Programme on the nutritional status of children: 2008–2012.** *ESSP Working Paper 99*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Ethiopia's Productive Safety Net Programme (PSNP) is a large-scale social protection intervention aimed at improving food security and stabilizing asset levels. The PSNP has been successful in improving household food security; however, children's nutritional status in the localities where the PSNP operates is poor, with 48 percent of children stunted in 2012. This leads to the question of whether the PSNP could improve child nutrition. In this paper, we examine the impact of the PSNP on children's nutritional status over the period 2008–2012. We find no evidence that the PSNP reduces either chronic undernutrition (height-for-age Z-scores, stunting) or acute undernutrition (weight-for-height Z-scores, wasting). While we cannot definitively identify the reason for this non-result, we note that child diet quality is poor. We find no evidence that the PSNP improves child consumption of pulses, oils, fruits, vegetables, dairy products, or animal-sourced proteins. Most mothers have not had contact with health extension workers nor have they received information on good feeding practices, and safe water practices are poor. These findings, along with work by other researchers, have informed revisions to the PSNP.

29. Benfica, Rui; and Thurlow, James. 2017. **Identifying priority value-chains in Ethiopia.** *ESSP Working Paper 110*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Prioritizing alternative spending options to maximize development opportunities is a major challenge when designing a National Agricultural Investment Plan (NAIP). This paper uses an economywide model to identify agricultural value-chains in Ethiopia whose expansion would be most effective at generating economic growth, reducing national and rural poverty, creating jobs, and diversifying diets. Results indicate that expanding cereals production would continue to contribute positively to pro-poor growth. However, the analysis suggests that there is no single value chain that can achieve all policy objectives. Instead, a balanced portfolio of value chains would not only enhance agriculture's future contribution to poverty reduction and economic growth but also promote faster rural transformation and dietary diversification, both of which are needed to create job opportunities and improve nutrition outcomes over the longer term. After considering alternative weighting schemes for competing policy goals, the analysis suggests that vegetables and fruits/tree crops should be considered "priority" value chains, because these are among the most effective at achieving multiple development objectives. Other highly ranked value chains include oilseeds, tobacco/cotton/tea, and milk/dairy.

30. Harris, Jody; Frongillo, Edward A.; Nguyen, Phuong H.; Kim, Sunny; and Menon, Purnima. 2017. **Changes in the policy environment for infant and young child feeding in Vietnam, Bangladesh, and Ethiopia, and the role of targeted advocacy.** *BMC Public Health* 17 (Suppl. 2): 492. [Link](#)

There is limited literature examining shifts in policy environments for nutrition and infant and young child feeding (IYCF) over time, and on the potential contribution of targeted advocacy to improved policy environments in low- and middle-income countries. This study tracked changes in the policy environment over a four-year period in three countries and examined the role of targeted nutrition and IYCF advocacy strategies by a global initiative. The written policy environment improved in each country, and by

2014 the discourse mirrored international priorities of stunting reduction and exclusive breastfeeding. Yet competing nutrition priorities remained in each context. Infant formula companies, in particular, emerged as key players against enforcement of IYCF legislation. The role of a targeted IYCF advocacy and policy support initiative supported multiple facets of the policy environment, ranging from alliances to legislation and implementation support. However, government commitment to funding, implementation, and enforcement is still emerging in each country, thus challenging the potential impact of new and improved policies. In conclusion, targeted policy advocacy can catalyze change in national nutrition and IYCF policy environments, especially actor commitment, policy guidance, and legislation. Implementation constraints—financing, capacity and commitment of systems, and competing priorities and actors—are essential to address in order to sustain further progress. The lack of pressing political urgency for nutrition and IYCF, and the uncertain role of international networks in national policy spaces, has implications for the potential for change.

31. Headey, Derek D.; Hodinott, John F.; and Park, Seolle. 2017. **Accounting for nutritional changes in six success stories: A regression-decomposition approach.** *Global Food Security* 13 (June): 12–20. [Link](#)

Over the past two decades, many developing countries have made impressive progress in reducing undernutrition. We explore potential explanations of this success by applying consistent statistical methods to multiple rounds of Demographic Health Surveys for Bangladesh, Nepal, Ethiopia, Odisha (India), Senegal, and Zambia. We find that changes in household wealth, mother's education, and access to antenatal care are the largest drivers of nutritional improvement, except for Zambia where large increases in bednet usage is the single largest factor. Other factors play a smaller role in explaining nutritional improvements with improvements in sanitation only appearing to be important in South Asia. Overall, the results point to the need for multidimensional nutritional strategies involving a broad range of nutrition-sensitive sectors.

32. Headey, Derek D.; Nguyen, Phuong H.; Kim, Sunny S.; Rawat, Rahul; Ruel, Marie T.; and Menon, Purnima. 2017. **Is exposure to animal feces harmful to child nutrition and health outcomes?: A multicountry observational analysis.** *American Journal of Tropical Medicine and Hygiene* 96 (4): 961–969. [Link](#)

It has recently been hypothesized that exposure to livestock constitutes a significant risk factor for diarrhea and environmental enteric disorder in young children, which may significantly contribute to undernutrition. This study investigates these issues using data from the Alive and Thrive study conducted in rural areas of Ethiopia, Bangladesh, and Viet Nam. These surveys used spot checks to collect data on proxies of hygiene behaviors such as the cleanliness of mothers, young children, and the homestead environment, including the presence of animal feces. Animal feces were visible in 38–42 percent of household compounds across the three countries and were positively associated with household livestock ownership and negatively associated with maternal and child cleanliness. Analysis indicates presence of animal feces is significantly and negatively associated with child height-for-age Z-scores in Ethiopia, Bangladesh, and in a pooled sample, but not in Viet Nam. There is also suggestive evidence that animal feces may be positively associated with diarrhea symptoms in Bangladesh. The results in this article, therefore, contribute to a growing body of evidence suggesting that animal ownership may pose a significant risk to child nutrition and health outcomes in developing countries.

33. Hirvonen, Kalle. 2017. **Improvements in living conditions in Ethiopia between 2000 and 2016: Evidence from Ethiopian Demographic and Health Survey data.** *ESSP II Research Note 69*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

This research shows how basic living conditions have improved markedly since 2000, albeit somewhat unevenly, with urban areas witnessing the greatest improvements. Still, better access to safe drinking water and proper toilets, together with better housing quality, are indicative that the benefits of economic growth are reaching rural areas.

34. Hirvonen, Kalle; Bossuyt, Anne; and Pigois, Remy. 2017. **Complementarities between social protection and health sector policies: Evidence from the Productive Safety Net Program in Ethiopia.** *ESSP Working Paper 112*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

In this study, we explore complementarities between three major national social protection programs in rural Ethiopia: the Productive Safety Net Program (PSNP), the Health Fee Waiver (HFW) system, and the Community Based Health Insurance (CBHI) in the Ethiopian highlands (Amhara, Oromia, SNNP, and Tigray regions). Using data from 2016, we find that in woredas (districts) where CBHI does not operate, only 3.5 percent of PSNP households report having benefited from the HFW. CBHI operates in about one-third of PSNP woredas in the Ethiopian highlands. In these woredas, nearly 22 percent of all PSNP beneficiary households are enrolled into CBHI. We find no evidence that PSNP households are either more or less likely to enroll into CBHI than are other poor households. For only 10 percent of all PSNP beneficiary households, the CBHI insurance premium was waived due to their low welfare level. Considering that PSNP consists of the poorest and most food-insecure households who would potentially greatly benefit from health insurance, this relatively low proportion of CBHI clients who receive premium waivers is of concern. In addition, 10 percent of PSNP households have experienced a serious income shock because of an illness, resulting in loss of consumption or loss of assets. Finally, many households, even those enrolled in CBHI or benefiting from HFW, incur out-of-pocket health expenditures. We take this to suggest that CBHI and HFW do not fully cover all healthcare costs relevant to rural households. Overall, these findings suggest that more work remains to be done to better link these three major social protection programs in Ethiopia in order to protect the poorest and most vulnerable households.

35. Hirvonen, Kalle; and Hoddinott, John F. 2017. **Agricultural production and children's diets: Evidence from rural Ethiopia.** *Agricultural Economics* 48 (4): 469–480. [Link](#)

We study the relationship between pre-school children's food consumption and household

agricultural production. Using a large household survey from rural Ethiopia, we find that increasing household production diversity leads to considerable improvements in children's dietary diversity. However, we also document how this nonseparability of consumption and production does not hold for households that have access to food markets. These findings imply that nutrition-sensitive agricultural interventions that push for market integration are likely to be more effective in reducing under-nutrition than those promoting production diversity.

36. Hirvonen, Kalle; Hoddinott, John; Minten, Bart; and Stifel, David. 2017. **Children's diets, nutrition knowledge and access to markets.** *World Development* 95: 303–315. [Link](#)

Chronic undernutrition in Ethiopia is widespread and many children consume highly monotonous diets. To improve feeding practices in Ethiopia, a strong focus in nutrition programming has been placed on improving the nutrition knowledge of caregivers. In this paper, we study the impact of caregivers' nutrition knowledge and its complementarity with market access. To test whether the effect of nutrition knowledge on children's dietary diversity depends on market access, we use survey data from an area with a large variation in transportation costs over a relatively short distance. We find that better nutrition knowledge leads to considerable improvements in children's dietary diversity, but only in areas with relatively good market access. Our findings suggest that policymakers and program implementers need to ensure that efforts to improve nutrition knowledge are complemented by efforts to improve access to food.

37. Minten, Bart; Assefa, Thomas Woldu; Abebe, Girum; Engida, Ermias; and Tamru, Seneshaw. 2016. **Food processing, transformation, and job creation: The case of Ethiopia's enjera markets.** *ESSP II Working Paper 96*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Ethiopia's food-processing industry employs one million people, around 2 percent of the economically active population, yet little is understood about how the industry is changing and how it functions. The markets in urban Ethiopia for commercial ready-to-

eat enjera are rapidly growing, employing more than 100,000 people in urban Ethiopia, many of whom are women. Moreover, enjera is now being prepared by mixing flour from locally produced teff with imported rice, thus absorbing an important part of the rapidly growing rice imports (almost US\$200 million in 2015) to the country and leading to higher profits for those enterprises engaged in this type of mixing. Increasing numbers of enjera-making enterprises are emerging, and those that supply the growing urban food service sector are being scaled up to cater for growing demand. Larger enjera-making companies have better quality products, different procurement mechanisms and technologies, and higher value added. These findings are important for policy debates in Ethiopia on food system transformation, employment creation, and international trade.

38. Stifel, David; and Minten, Bart. 2017. **Market access, well-being, and nutrition: Evidence from Ethiopia.** *World Development* 90: 229–241. [Link](#)

We use a unique data source from a rural area in northwestern Ethiopia to analyze the relationship between household/individual well-being, nutrition, and market access. We find that households residing in relatively more remote areas consume substantially less than households nearer to markets, are more food insecure, and their school enrollment rates are lower. Although their diets are also less diverse, we find no significant differences in mother and child anthropometric measures. Part of the differences in well-being that we do observe can be attributed to lower household agricultural production in remote areas. Nonetheless, agricultural production differences alone do not account for all the differences in household consumption levels for remote households. An additional contributing factor is the terms of trade for remote households that negatively affect both the size of the agricultural surplus that these households market and the quantity of food items that they purchase. Reducing transaction costs for remote households and facilitating migration could help equalize well-being among more or less favored locations.

39. Wondafrash, Mekitie; Huybregts, Lieven; Lachat, Carl; Bouckaert, Kimberly P.; and Kolsteren, Patrick. 2017. **Feeding practices and growth among young children during two seasons in rural Ethiopia.** *BMC Journal* 3 (39). [Link](#)

The use of indices of infant and young child feeding practices to predict growth has generated inconsistent results, possibly through age and seasonal confounding. This study evaluated the association of a dietary diversity score (DDS) and infant and child feeding index (ICFI) with growth among young children in a repeated cross-sectional and a follow-up study in two distinct seasons in rural southwest Ethiopia. The DDS was found to be an indicator for child stunting during the Ethiopian harvest season. The DDS can be an appropriate tool to evaluate the association of child feeding practices with child growth irrespective of season. Inclusion of other dimensions in the construction of ICFI should be considered in future analysis as we found no association with growth.

40. Worku, Ibrahim Hassen; Dereje, Mekdim; Minten, Bart; and Hirvonen, Kalle. 2017. **Diet transformation in Africa: The case of Ethiopia.** *Agricultural Economics* 48 (supp.): 73–86. [Link](#)

In this study, we use four rounds of nationally representative data from Ethiopia to document changes in household food consumption patterns over a period of rapid economic growth, emerging urbanization, and structural transformation. We find that while the share of food in the total consumption basket is declining, food quantities and calorie intakes considerably increased between 1996 and 2011. A decomposition analysis suggests that this was mostly driven by improvements in household incomes—a finding that is consistent across the calorie distribution. Also, the content of the food basket is changing with a gradual shift toward high-value foods such as animal products, fruits and vegetables, and processed foods. Overall, this diet transformation has important implications for the food security debate and for agricultural and food policy in the country.

2016

41. Assefa, Thomas Woldu; Abebe, Girum; Lamoot, Indra; and Minten, Bart. 2016. **Urban food retailing and food prices in Africa: The case of Addis Ababa, Ethiopia.** *Journal of Agribusiness in Developing and Emerging Economies* 6 (2): 90–109. [Link](#)

Despite the large interest in urban food markets, few studies have empirically documented the functioning of retail markets in developing countries, especially in Africa. This paper looks at 1,226 urban food retail outlets in Addis Ababa in 2012 to better understand urban food retail. There is increasing differentiation in food retail markets in recent years. Despite the prohibition of foreign direct investment in food retail, a domestic modern private retail sector is quickly emerging. However, its share is still very small and, in contrast to roll-outs of modern retail in other countries, it has not yet entered the cereal sector, which remains in the hands of local flour mills, cereal shops, and cooperative retail outlets. The importance of cooperative retail is growing even more rapidly, especially for those products where supply chains are controlled by the government. On the high-end, domestic private modern retail outlets deliver high-quality products at significantly higher prices, *ceteris paribus*. At the other side, cooperative retail delivers food at significantly lower—and subsidized—prices. However, the latter shops are characterized by typical price control problems, reflected in regular lack of supplies and queuing.

42. Headey, Derek; and Hirvonen, Kalle. 2016. **Is exposure to poultry harmful to child nutrition? An observational analysis for rural Ethiopia.** *PloS one* 11 (8): e0160590. [Link](#)

Recent research suggests that elevated exposure to livestock—particularly poultry and poultry feces—may be an important risk factor for diarrhea, environmental enteric disorder (EED), and respiratory infections, all of which may seriously retard linear growth in young children. Yet a very different literature suggests that livestock ownership is highly beneficial for child growth outcomes through its importance for increasing consumption of nutrient-rich animal-sourced foods, such as eggs. Together, these two literatures suggest that the net nutritional benefit of poultry ownership is particularly ambiguous and potentially mediated by whether or not children

are highly exposed to poultry. We test this novel hypothesis using a large agricultural survey of rural Ethiopian households. We find that while poultry ownership is positively associated with child HAZ, the practice of corralling poultry in the household dwelling overnight is negatively associated with HAZ. Moreover, we find no negative associations between HAZ and corralling other livestock species indoors. These results suggest that while poultry ownership can be beneficial to child growth, overly close exposure to poultry poses a concurrent risk factor for undernutrition, most likely because of increased risk of infection.

43. Hirvonen, Kalle. 2016. **Rural–urban differences in children’s dietary diversity in Ethiopia: A Poisson decomposition analysis.** *Economics Letters* 147: 12–15. [Link](#)

An emerging body of literature shows how low diversity in diets is associated with increased risk of chronic undernutrition and micronutrient deficiencies in young children. The latest available Demographic and Health Survey data for Ethiopia reveals unusually large differences in children’s dietary diversity between rural and urban areas. Applying recently developed nonlinear decomposition methods, this large rural–urban gap in dietary diversity can almost entirely be explained by differences in household wealth, parental education, and access to health services between rural and urban areas. [Link to earlier working paper.](#)

44. Hirvonen, Kalle; Taffesse, Alemayehu Seyoum; and Worku, Ibrahim Hassen. 2016. **Seasonality and household diets in Ethiopia.** *Public Health Nutrition* 19 (10): 1723–1730. [Link](#)

We assess how household diets vary across agricultural seasons in rural and urban Ethiopia using nationally representative household-level data collected each month over one year. For rural households, the mean daily per capita energy intake was 10,288 kJ (2459 kcal) in February (postharvest period) and lower in the lean season: 9703 kJ (2319 kcal) in June ($P < 0.05$) and 9552 kJ (2283 kcal) in July ($P < 0.001$). Household Dietary Diversity Scores (HDDS) for rural households was highest in February (6.73) and lowest in June (5.98; $P < 0.001$) but high again in July (6.57). Urban energy intake was also lower in the lean season, but HDDS varied less by season.

Considerable seasonal variation was also found in energy sources in rural areas, less so in urban areas. In conclusion, household diets in Ethiopia remain subject to significant seasonal stress. HDDS and food security measured using energy intake do not always agree. Preferably, HDDS and energy intake data should be used together to assess food security.

45. Kim, Sunny S.; Rawat, Rahul; Mwangi, Edna M.; Tesfaye, Roman; Abebe, Yewelsew; Baker, Jean; Frongillo, Edward A.; Ruel, Marie T.; and Menon, Purnima. 2016. **Exposure to large-scale social and behavior change communication interventions is associated with improvements in infant and young child feeding practices in Ethiopia.** *PLoS ONE* 11 (10): e0164800. [Link](#)

Optimal breastfeeding (BF) practices in Ethiopia are far below the government's targets, and complementary feeding practices are poor. The study assessed the social and behavior change communication interventions on infant and young child feeding (IYCF) practices and anthropometry over time in two regions—Southern Nations, Nationalities and Peoples Region and Tigray. We observed improvements in most WHO-recommended IYCF indicators. Early BF initiation and exclusive BF increased by 13.7 and 9.4 percentage points (pp), respectively. Timely introduction and intake of foods promoted by the interventions improved significantly, but anthropometric outcomes did not. We also observed a dose-response association between health post visits and early initiation of BF; higher numbers of home visits by community volunteers and key messages recalled were associated with 1.8–4.4 times greater odds of achieving Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF), and Minimum Acceptable Diet (MAD), and higher numbers of radio spots heard were associated with three times greater odds of achieving MDD and MAD. The interventions were associated with plausible improvements in IYCF practices, but large gaps in improving children's diets in Ethiopia remain, particularly during complementary feeding.

46. Minten, Bart; Engida, Ermias; and Tamru, Seneshaw. 2016. **How big are post-harvest losses in Ethiopia? Evidence from teff.** *ESSP II Working Paper 93*. Washington, DC, and Addis Ababa, Ethiopia: International Food Policy Research

Institute (IFPRI) and Ethiopian Development Research Institute (EDRI). [Link](#)

Based on a unique large-scale data set on teff production and marketing, we study postharvest losses in rural–urban value chains, specifically between producers and urban retailers in the capital, Addis Ababa. We analyze the structure of the value chain and rely on self-reported losses by different value chain agents (farmers, wholesale traders, and retailers). We estimate that postharvest losses in the most prevalent pathway in the rural–urban value chain, amount to between 2.2 and 3.3 percent of total harvested quantities. The variation in this figure depends on the storage facilities used and on assumed losses during transport at the farm. These losses are significantly lower than is commonly assumed for staple foods, possibly because of the rather good storage characteristics of teff due to its low moisture content. These findings, nonetheless, point to the need to gather further solid evidence on postharvest losses in staple foods in these settings to ensure appropriate policies and investments.

47. Minten, Bart; Tamru, Seneshaw; Engida, Ermias; and Kuma, Tadesse. 2016. **Feeding Africa's cities: The case of the supply chain of teff to Addis Ababa.** *Economic Development and Cultural Change* 64 (2): 265–297. [Link](#)

Urbanization is quickly increasing in Africa, raising important questions about how food value chains to cities function and what the implications of urban growth are for the local food trade and farm sector. We study the rural–urban value chain of teff in Ethiopia, by value its most important staple value chain. Relying on unique large-scale surveys at different levels in this value chain, we find—in contrast to conventional wisdom—that value chains are relatively short and that average farmers obtain a high share, about 80 percent, of the final consumer price in the major terminal market, Addis Ababa. We further find that producer prices decline in line with transportation costs, the farther farmers live from the city; that seasonal price movements are rather small; and that average stock release by farmers is smooth over the year.

BOOKS AND BOOK CHAPTERS

1. Bossuyt, Anne. 2019. **Moving toward nutrition-sensitive agriculture strategies and programming in Ethiopia.** In *Agriculture for improved nutrition: Seizing the momentum*, edited by Shenggen Fan, Sivan Yosef, and Rajul Pandya-Lorch. Chapter 16. Wallingford, UK: International Food Policy Research Institute (IFPRI) and CABI. [Link](#)

This chapter discusses Ethiopia's various nutrition-related indicators, which show the persistence of child and adult malnutrition, despite some progress. It then discusses the major programs and policies that have been launched during the past two decades within the nutrition and agriculture sectors, and at the global level too, and the synergies (and remaining gaps) between them. The sum of these developments reflect Ethiopia's slow but promising shift to a coordinated, multisectoral approach to improving nutrition.

2. Dorosh, Paul A.; and Rashid, Shahidur, eds. 2012 **Food and agriculture in Ethiopia.** Philadelphia, PA: University of Pennsylvania Press for the International Food Policy Research Institute / Ethiopia Strategy Support Program. [Link](#)

Ethiopia encompasses a wide variety of agroecologies and peoples, and its agriculture sector, economy, and food security status are equally complex. Since 2001 the per capita income in certain rural areas has risen by more than 50 percent, and crop yields and availability have also increased. Higher investments in roads and mobile phone technology have led to improved infrastructure and thereby greater access to markets, commodities, services, and information.

This book tells the story of Ethiopia's political, economic, and agricultural transformation and provides empirical evidence to shed light on the complexities of agricultural and food policy in today's Ethiopia and highlight major policies and interventions of the past decade. It also provides insights into building resilience to natural disasters and food crises. It examines the key issues, constraints, and opportunities that are likely to shape a food-secure future in Ethiopia, focusing on land quality, crop production, adoption of high-quality seed and fertilizer, and household income.

3. Hirvonen, Kalle; Headey, Derek; Golan, Jenna; and Hodinott, John. 2018. **Changes in child undernutrition rates in Ethiopia 2000–2016.** In *The Oxford handbook of the Ethiopian economy*, edited by Christopher Cramer, Fantu Cheru, and Arkebe Oqubay. Chapter 23. Oxford: Oxford University Press. [Link](#)

In the 1980s and 1990s Ethiopia was synonymous with famine and had one of the highest rates of chronic child under-nutrition in the world. From around the turn of the millennium, however, anthropometric measures of nutrition have improved substantially. Among children 0–5 years, the prevalence of stunting—a measure of chronic under-nutrition—fell from 58 per cent in 2000 to 38 per cent in 2016. In this chapter, we carefully document how stunting rates have changed by gender, and across space and wealth strata. We then use insights from the nutrition literature to understand the possible underlying drivers of this rapid reduction in stunting prevalence. This analysis suggests that the fall in stunting over this period was driven by improvements in exclusive breastfeeding practices. Meanwhile, poor maternal health during pregnancy, and poor dietary diversity during complementary feeding remain significant risk factors for stunting.

4. Holdsworth, Michelle; Aryeetey, Richard N. O.; Jerling, Johann; Taljaard, Christine; Nago, Eunice; Colecraft, Esi; Lachat, Carl; Kolsteren, Patrick; Hailu, Tesfaye; and Verstraeten, Roos. 2016. **The challenges, opportunities, and lessons learned in evidence-informed decision making in Africa.** In *Achieving a nutrition revolution for Africa: The road to healthier diets and optimal nutrition*, edited by Namukolo Covic and Sheryl L. Hendriks. Chapter 9. Washington, DC: International Food Policy Research Institute (IFPRI). [Link](#)

This chapter explores how evidence-informed decision-making related to nutrition can be enhanced in Africa. It highlights the opportunities evidence presents to contribute more effectively to addressing the nutritional challenges on the continent by drawing on lessons learned so far about evidence-informed decision-making in Africa (including in Ethiopia). Hence, it is imperative that countries design policies and programs that will not only enable them to sustain and accelerate the current recovery process but also generate high economic growth that is inclusive and creates significant employment

opportunities in order to lift millions out of poverty. Africa’s ability to sustain and accelerate its current growth will be determined by the effectiveness of its response to the challenges and opportunities it faces resulting from a deepening globalization, a rapid pace of urbanization, a rising middle class, a growing young population, rapidly transforming food systems, a changing climate, and more volatile global food and energy prices.

5. Minten, Bart; Tafesse, Alemayehu Seyoum; and Brown, Petra, eds. **The economics of teff: Exploring Ethiopia’s biggest cash crop**. 2018. Washington, DC: International Food Policy Research Institute / Ethiopia Strategy Support Program. [Link](#)

Agricultural transformation is a crucial development goal for Ethiopia. One promising improvement is to increase production of teff, Ethiopia’s calorie- and nutrient-rich but low-yielding staple. This book examines key aspects of teff production, marketing, and consumption, with a focus on opportunities for and challenges to further growth. The authors identify ways to realize teff’s potential, including improving productivity and resilience, selecting and scaling up new technologies, establishing distribution systems adapted to different areas’ needs, managing labor demand and postharvest operations, and increasing access to larger and more diverse markets. The book’s analysis and policy conclusions should be useful to policymakers, researchers, and others concerned with Ethiopia’s economic development.

6. Warren, Andrea M. 2016. **Agriculture, WASH, and safety nets: Ethiopia’s multisector story**. In *Nourishing millions: Stories of change in nutrition*, edited by Stuart Gillespie, Judith Hodge, Sivan Yosef, and Rajul Pandya-Lorch. Chapter 16. Washington, DC: International Food Policy Research Institute (IFPRI). [Link](#)

Over the past 25 years, Ethiopia has made remarkable headway in addressing the country’s nutrition situation. This chapter uses household interviews to contribute to a discussion of improvements in agriculture and sanitation and their possible effects on lives and livelihoods at the community level. The discussion of agricultural improvements pays particular attention to nutrition-sensitive recent efforts in the study area. The discussion of sanitation describes in detail the strong commitment to implementing improved sanitation countrywide and identifies areas for ongoing improvements. Looking to the future of nutrition, we discuss the changes being made to the country’s Productive Safety Net Program—a flagship government-led social protection program under the Ministry of Agriculture that is concerned primarily with alleviating food insecurity and preventing asset depletion for the most vulnerable households. Recent changes to the program to make it explicitly nutrition sensitive demonstrate positive momentum toward improving nutrition and serve as evidence that nutrition is making its way into the policy mainstream. We conclude by discussing lessons learned from the different programs in place.



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