CHAPTER 4

Diet Affordability
Understanding the High Cost of Healthy Diets



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KEY MESSAGES

- Healthy diets that provide a range of safe and nutritious foods are not yet affordable for much of the world's population, especially in South Asia and Africa. The cost of a healthy diet is defined as the least expensive combination of locally available items that meet a food-based dietary guideline. This metric, which is relatively new, indicates that between 2 and 3 billion people cannot afford a healthy diet.
- Poverty is a primary factor limiting diets. There is a huge gap between the current food budgets of the world's poor and the spending needed for a healthy diet. Current social protection transfers in Asia and Africa barely begin to fill the healthy diet affordability gap.
- High prices of nutritious foods also limit access to healthy diets. Nutrient-dense foods – especially fruits, vegetables, and animal-source foods – are relatively expensive compared with calorie-dense foods, in part because agricultural policies and consumer subsidies have long favored production of staple crops.
- Provisional evidence suggests healthy diet costs are much higher in countries with poor transport, storage, and logistics infrastructure and services.

To shift actual diets toward healthy diets, we need to:

- Improve national and subnational monitoring of healthy diet affordability, including food prices, expenditures, and wages, in order to strengthen knowledge and provide a strong platform for nutrition interventions.
- Accelerate pro-poor economic growth in low- and middle-income countries (LMICs) through reforms to catalyze more equitable and inclusive growth.
- Increase availability and reduce prices of nutritious foods by repurposing agricultural policies toward nutritious foods and increasing investment in transport, infrastructure, and logistics.
- Scale up nutrition-sensitive social protection in LMICs, including appropriate targeting of vulnerable groups, delivering transfers that come closer to bridging the healthy diet affordability gap, and linking social protection with nutrition education interventions that increase demand for healthy foods and decrease demand for unhealthy foods.



The 1996 World Food Summit defined food security as existing "when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life." For many decades, however, food security measurement and policy were chiefly focused on ensuring adequate supplies of calories or calorie-dense staple foods, rather than year-round universal affordability of a wider range of safe and nutritious foods. In the past five years, new metrics of healthy diet affordability have been developed to address this (see Box 1), first in Asian case studies[1] and then in the global context of costing the EAT-Lancet diet[2] and a global healthy diet adopted in the State of Food Security and Nutrition (SOFI) reports.[3] Depending on the methods used and the definition of a healthy diet,[4] it is estimated that between 2 and 3 billion people worldwide — mostly in low- and middle-income countries (LMICs) — cannot afford a healthy diet.

The implications for human nutrition are striking: affordability is a binding constraint to achieving a healthy diet in the world's poorest countries, and it would require truly heroic efforts to improve universal economic access to healthy foods. But what are those heroic efforts? To initiate strategic thinking on this question, this chapter poses several questions.

First, how large are the scale and scope of the affordability problem? How many billions of people cannot afford a healthy diet? In which regions are the "diet poor" concentrated? How large is the gap between their current food budgets and the food spending required to support a healthy diet?

Second, why are healthy diets so unaffordable for so many? Is poverty simply too deep and pervasive? Or do poor people also live in food environments (see Chapter 5) where healthy foods are expensive? If we address affordability constraints, could we really achieve a rapid improvement in diets, or would people's preferences also stand in the way?

Third, what actions are required to not only address the healthy diet affordability problem, but also achieve a shift toward healthy diets by simultaneously addressing behavioral barriers to choosing healthy foods?

BOX 1 MEASURING THE COST AND AFFORDABILITY OF HEALTHY DIETS

The cost of a healthy diet is defined as the least expensive combination of locally available items that meet a food-based dietary guideline (FBDG). This "cost and affordability of a healthy diet" metric (CoAHD) is relatively new, having first been developed in Asian contexts using national FBDGs, and then in global studies on cost and affordability of the EAT-Lancet global reference diet and an alternative global healthy diet now used in the State of Food Security and Nutrition reports. Cost of healthy diet metrics are different from the cost of nutrient-adequate diets designed to meet all essential nutrient requirements. Many organizations (including the World Food Programme) use nutrient-adequacy diet costing for analysis of specific target groups, social protection transfer requirements, and food fortification interventions, which is especially useful in settings where unaffordability of healthy, nutritious diets is widespread and deep. However, a healthy diet consists of more than just nutrients, since healthy foods can help to prevent disease just as unhealthy foods can increase the risk of disease. Moreover, the EAT-Lancet healthy reference diet also has environmental sustainability objectives.

There are four key steps for measuring the cost of a healthy diet:

1. Quantify a hypothetical reference diet consisting of consumption targets for essential food groups that are consistent with FBDGs.
2. Convert food group recommendations into number of servings or grams into calories.
3. Assign food items to the guideline's food group classifications.
4. Convert retail prices of food items into standardized costs per edible calorie.
5. Select the cheapest food items that the reference diet's food group targets.

These healthy diet costs can be expressed in different currencies and in nominal or real terms, but only really assume significance when used to measure the affordability of the least-cost healthy diet or when monitored. The key challenge here is to estimate a realistic food budget for an individual or household. Some studies compare the cost of a healthy diet to a household's actual food expenditures, while others estimate a share of total expenditure or income that might be spent on food. Unfortunately, income/expenditure surveys are infrequently implemented in LMICs (often only every five years, a far lower frequency than the general availability of administrative or other data on prices). In contrast, a recent IFPRI study argues that affordability of healthy diets can instead be monitored at high frequency by comparing healthy diet costs to wage rates for different kinds of low-skilled activities or occupations. The authors show that monthly price and wage data can be used to track the impacts of major economic shocks on healthy diet affordability in crisis-affected countries like Sri Lanka, Myanmar, and Ethiopia, as well as periods of long-term progress in improving affordability of healthy diets.

CoAHD measures can be sensitive to choice of methods and data sources, yet the conclusion that several billion people around the world cannot afford a healthy diet is robust, and the value of CoAHD metrics in capturing key affordability constraints to improving diets is clear. There is, moreover, huge potential scope to expand CoAHD measurement at the national and subnational levels using existing government data.

Source: Tufts Friedman School of Nutrition Science and Policy, "Food Prices for Nutrition" (https://sites.tufts.edu/foodpricesfornutrition/methods/); D. Headey, F. Bachewe, Q. Marshall, K. Raghunathan, and K. Mahrt, "Food Prices and the Wages of the Poor: A Cost-effective Addition to High-frequency Food Security Monitoring," *Food Policy* 125 (2024): 102630; D. Headey, K. Hirvonen, and H. Alderman, "Estimating the Cost and Affordability of Healthy Diets: How Much Do Methods Matter?," IFPRI Discussion Paper 2179, IFPRI, Washington, DC, 2023.

In the remainder of this chapter, we will attempt to answer these questions. We conclude the chapter with a summary of six sets of actions that are instrumental for rapidly achieving a convergence of actual diets in LMICs toward healthy diets.

HOW BIG IS THE PROBLEM?

To illustrate the healthy diet affordability problem at a global level, we report results from an updated empirical analysis of the cost of the EAT-Lancet global reference diet (hereafter ELD).[5] We use the ELD caloric intake recommendations for nine food groups to estimate each food group's minimum cost and the aggregate least-cost ELD for 107 LMICs.

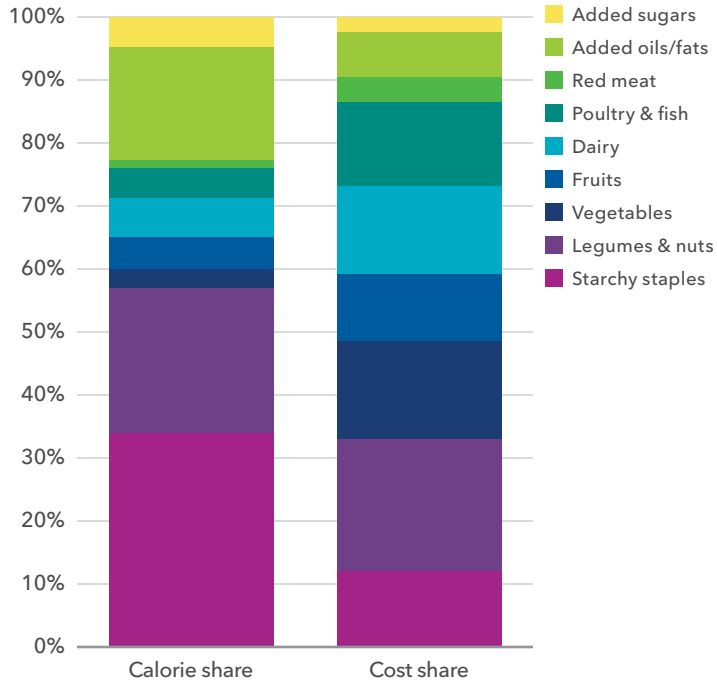
A first key finding is that the sample average for the least-cost ELD diet is $2.98 per person per day in 2017 purchasing power parity (PPP) terms.[6] While this sounds inexpensive for a typical consumer in a high-income country, it is quite costly for consumers in LMICs. The median per capita income in a country like Tanzania is just $2.33 per day, which also needs to cover an individual's non-food expenditure requirements, implying that the ELD is highly unaffordable for a typical Tanzanian.

Why are healthy diets relatively expensive? Figure 1 shows the calorie shares of the ELD as well as its average cost shares. When a food group has a cost share that is smaller than its calorie share, it is a relatively cheap source of calories: generally starchy staples, oils and fats, and sugars. Conversely, when a food group has a cost share that exceeds its calorie share, it is a relatively expensive source of calories even if it delivers micronutrients or high-quality protein relatively cheaply. Fruits, vegetables, and animal-source foods (meat, fish, dairy, and eggs) all have relatively high cost shares and collectively account for 57 percent of the average ELD cost, compared with just 20 percent of calorie shares.

Data from household expenditure surveys allow us to estimate the number of people whose food expenditure is below that country's ELD cost. Table 1 reports cost and affordability of a healthy diet (CoAHD) statistics stratified by World Bank income groups and regions. Column (1) reports the absolute number of people who cannot afford a healthy diet ("diet poor" for short), while column (2) reports each group's share of the global diet-poor, and column (3) reports the prevalence of people unable to afford a healthy diet. This table also reports the difference between an average individual's estimated food expenditure and the healthy diet cost (column 4), which reflects the daily cash transfer that would be required to make a healthy diet affordable to the average person in each region or income group, assuming (optimistically) that the transfer is entirely spent on food. Aggregating this measure for all diet-poor individuals yields the total amount of money that would have to be transferred per day to eliminate diet poverty in a given income or regional group, as reported in column (5).[7]

Table 1 suggests that 2.66 billion people in 128 countries could not afford the ELD in 2017,[8] with around 50 percent of these residing in South

FIGURE 1 The EAT-Lancet reference diet's recommended calorie intake shares versus its cost shares in 107 LMICs



Source: Authors' estimates based on methods described in K. Hirvonen, Y. Bai, D. Headey, and W.A. Masters, "Affordability of the EAT-Lancet Reference Diet: A Global Analysis," *Lancet Global Health* 8, 1 (2020): e59–e66.

TABLE 1 Metrics on "diet poverty" for the EAT-Lancet reference diet, by World Bank income groups and geographic regions, 2017

Income levels and geographic regions	Number of countries	(1) Absolute number (millions)	(2) Share of "global" diet-poor population	(3) Prevalence of unaffordable diet	(4) Daily cost of making healthy diets affordable for an average diet-poor consumer (PPP $) (poverty gap measure)	(5) Aggregate daily cost of making healthy diets affordable for all diet-poor consumers (PPP $ billions)
Income level						
High income	39	11.0	0.4%	1.0%	$0.05	$0.00
Upper-middle income	34	362.2	13.6%	15.0%	$0.44	$0.16
Lower-middle income	35	1913.0	71.7%	67.6%	$1.39	$2.66
Low income	20	382.9	14.3%	84.4%	$1.95	$0.75
Geographic region						
South Asia	6	1315.3	49.3%	76.4%	$1.43	$1.88
Sub-Saharan Africa	38	725.4	27.2%	78.2%	$1.82	$1.32
East Asia and Pacific	13	412.7	15.5%	18.6%	$0.42	$0.17
Middle East and North Africa	9	101.5	3.8%	42.3%	$1.22	$0.12
Latin America and Caribbean	18	93.1	3.5%	17.7%	$0.65	$0.06
Europe and Central Asia	42	16.8	0.6%	2.1%	$0.11	$0.00
North America	2	4.2	0.2%	1.2%	$0.04	$0.00
Global	128	2669.0	100.0%	39.3%	$1.34	$3.56
Global with alternative method	128	2006.7		29.5%	$0.58	$1.17

Note: The main method follows Hirvonen et al. (2020) with a 37 percent fixed non-food cost component, as used in SOFI 2020. The alternative method in the last row of Table 1 adjusts for cross-country differences in demographics, non-food expenditure requirements, and price survey characteristics, as per Headey et al. (2023). PPP $ = purchasing power parity dollars in 2017 terms. See K. Hirvonen, Y. Bai, D.D. Headey, and W.A. Masters, "Affordability of the EAT-Lancet Reference Diet: A Global Analysis," *Lancet Global Health* 8, 1 (2020): e59–e66; and D.D. Headey, K. Hirvonen, and H. Alderman, "Estimating the Cost and Affordability of Healthy Diets: How Much Do Methods Matter?," IFPRI Discussion Paper 2179, IFPRI, Washington, DC, 2023.

Asia, almost 30 percent in sub-Saharan Africa, and just over 15 percent in East and Southeast Asia (see Regional Developments section of this report). In terms of prevalence, three in four people in South Asia and sub-Saharan Africa are estimated to have been unable to afford the ELD in 2017.

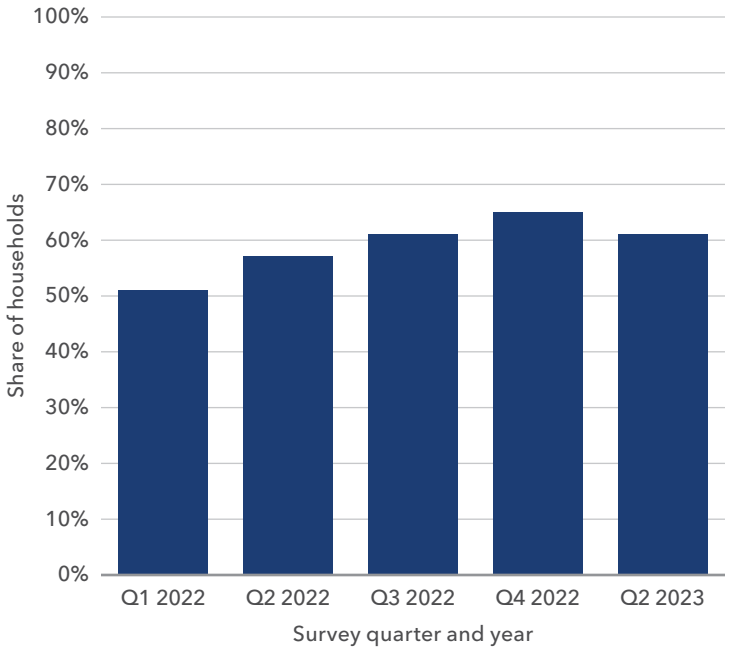
These global estimates for 2017, as well as the SOFI reports' estimates, should be treated with some caution for several reasons. First, there are certainly limitations to the underlying data used in global calculations. Price data are for 2017 only, and income/expenditure survey data are often out of date, most notably for India, where the last expenditure survey was implemented in 2011–2012.[9] The number of diet poor in India has almost certainly decreased in the past 12 years. Conversely, economic and other crises in many LMICs since COVID-19 have likely led to increasing numbers of diet poor. For example, military misrule in Myanmar led to a 56 percent increase in the cost of a healthy diet in 2022 and a 14 percentage point increase in the share of people who could not afford that diet (Figure 2).[10] Second, estimation methods matter in global calculations. Drawing on a recent IFPRI study,[11] the bottom row of Table 1 gives alternative estimates that adjust for cross-country differences in demographic structures, non-food expenditure requirements, and price survey characteristics. Strikingly, these adjustments reduce the estimated total number of people who cannot afford the ELD from 2.66 billion to just over 2 billion.

All these considerations suggest an urgent need for updated data and analysis on the cost and affordability of healthy diets at global, regional, national, and subnational levels. Yet, from a practical standpoint, all existing national and global estimates present daunting numbers that highlight the scale of the affordability problem. That problem is immense, and we need to understand why it exists and what to do about it.

WHY ARE HEALTHY DIETS SO UNAFFORDABLE FOR SO MANY? AND WHAT ARE THE SOLUTIONS?

Poverty, price, and preferences represent three barriers to achieving a sustainable shift to healthy diets. The combination of low incomes and relatively high prices for nutritious foods constitutes the key economic barrier to shifting toward healthier diets, but we also need to acknowledge the possibility that economic solutions are necessary but not sufficient. People may not choose to eat healthier diets even when they can afford to do so, or their food environment may have limited availability of healthy foods.

FIGURE 2 Prevalence of households in Myanmar that could not afford a healthy diet, 2022 and 2023



Source: Authors' calculations from IFPRI's Myanmar Household Welfare Survey.

Note: These data reflect the prevalence of households that could not afford a healthy diet during a rapid increase in the cost of living in 2022 and early 2023.

THE POVERTY PROBLEM

ECONOMIC GROWTH. Too many people in the world simply do not earn enough to purchase the recommended quantities of healthy foods in their food environments. How quickly could economic growth improve the affordability of healthy diets in LMICs? To explore this question, we use cross-country regressions to estimate the responsiveness of healthy diet affordability to economic growth. We estimate that a 1 percent increase in per capita GDP is associated with a 1.3 percent reduction in the number of people who cannot afford the minimum cost of the ELD (on average). These results imply that faster economic growth can indeed be expected to help address the affordability problem. However, it is important to know that population growth works in the other direction, by increasing the absolute number of people who cannot afford a healthy diet; a 1 percent increase in population is associated with a 1.8 percent increase in the number of diet poor. Hence economic growth needs to substantially outpace population growth rates, which remain high in sub-Saharan Africa especially (2.5 percent annually as of 2020).

SOCIAL PROTECTION. While economic growth is a critical long-term driver of improved affordability of healthy diets, nutrition-sensitive social protection programs could offer a more immediate means to bridge affordability gaps. However, the current social protection gap – the difference between actual social protection transfers and the level needed to make healthy diets affordable – is enormous. The unadjusted affordability estimates in Table 1 show that the average diet-poor person in a low-income country would require a transfer of $1.95 per day to afford a healthy diet, which falls to $1.39 per day in lower-middle-income countries. Those transfers, however, are unrealistic compared to actual transfers. During the extraordinary circumstances of COVID-19, for example, poorer households in lower-middle-income countries in Asia typically received around $0.50 per day (in cash or in kind). For a household of five, that amounts to $0.10 per individual, which is woefully insufficient compared with the

$1.39 required to close the gap. It follows that such a modest transfer would also have only a very limited impact on diet quality.[12]

Even so, social protection can still play a role in improving healthy diet affordability. First, in upper-middle-income countries, the affordability challenge is less fiscally overwhelming (Table 1), suggesting that nutrition-sensitive social protection programs in these countries have a realistic prospect of promoting a shift toward achieving affordability of healthy diets. Second, in poorer countries, social protection programs could aim to target the most nutritionally vulnerable groups, such as through maternal and child cash transfers[13] or specially formulated fortified foods for pregnant and breastfeeding women and young children, rather than giving very small transfers to a larger swathe of the population.[14] Third, there is surely scope to scale up social protection in LMICs through internal reallocation of LMIC government expenditures and more generous development assistance to social protection programs. Globally, 1.5 billion people are assisted by social safety nets,[15] with LMICs spending an average of only 1.5 percent of GDP on these programs.[16] Across countries, there is a statistically significant association between social protection spending and decreases in diet poverty. We use that association to project that if LMICs spent 2 percent or more on social safety nets, they could reduce the number of individuals unable to afford the ELD by 95.5 million in 2030.[17]

THE PRICE PROBLEM

Previously, we noted that the average price of the ELD in LMICs is a costly $2.98 per day in 2017 dollars, and that many healthy foods are quite costly for consumers. There are many ways to reduce prices of healthy foods, but for all of them, important trade-offs exist in terms of fiscal costs, the speed at which prices might change, and financial sustainability.

AGRICULTURAL SUPPORT. In the short run, agricultural support through producer subsidies, price subsidies, or border protection measures (such as tariffs) can either increase or decrease consumer prices. The 2022 SOFI report[18] finds that support to agricultural production in richer countries generally focuses on staple foods, dairy, other protein-rich foods, and sugar. In LMICs, rice, wheat, and sugar are often subsidized, while fruits and vegetables are supported much less or even taxed. Consumer price subsidies — which have potential to support healthier diets — are rare in LMICs because of their fiscal cost. They are also likely to be regressive because better-off households consume more nutrient-dense foods than poorer households.

In many Asian countries, rice and wheat are subsidized both for producers (through input subsidies and price supports) and for consumers (as through India's Public Distribution Scheme; see South Asia regional section). The subsidies to farmers almost certainly inhibit diversification into healthy food production, but offering consumers cheaper grains frees up room in household food budgets for spending on non-staple foods, potentially allowing for greater dietary diversification.

However, diversifying agricultural production could have significant effects on relative prices. Healthy foods that are highly perishable would experience the largest price reductions from a given productivity gain, because these commodities cannot be cost-effectively imported or exported except through regional cross-border trade. In other words, prices for perishable healthy foods are set at a more local level, so an increase in supply of a perishable food from an improved production, processing, or marketing technology could result in a sizable sustained reduction in its price, benefiting consumers, but also potentially benefiting producers if productivity gains offset declining prices. Some of these perishable foods may also be attractive investments for other reasons, including for the private sector, especially if strong consumer demand creates scope for sustained expansion of production and domestic marketing. Moreover, from an R&D perspective, fruits, vegetables, and many livestock or aquatic foods are often historically neglected, meaning that additional investments are likely to have notable impacts on productivity, whereas crops like rice, maize, and wheat that benefited from the Green Revolution now face diminishing returns on investment.[19] An additional criterion relevant for selecting high-potential commodities for new agricultural R&D

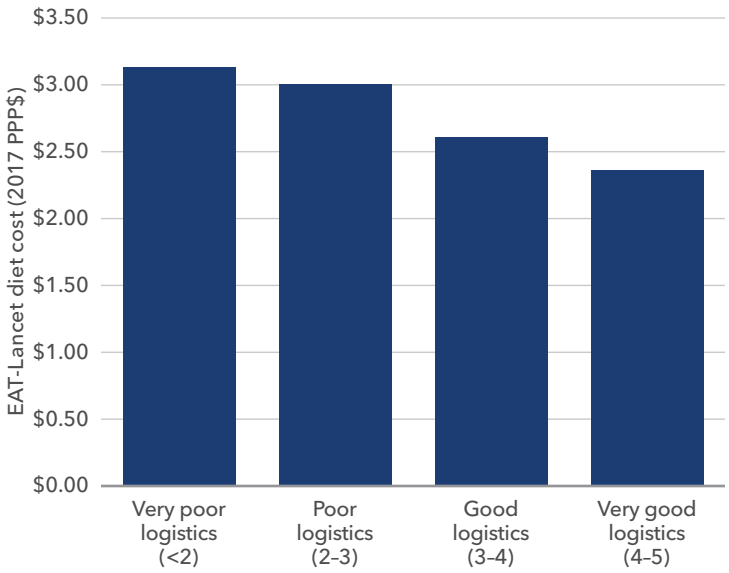
investments is their potential to influence poverty reduction, important in its own right, but also instrumental to achieving a shift toward healthy diets through income effects.

These may seem to be logical assertions, and they are also testable in simulation tools such as IFPRI's RIAPA model,[20] but is there historical evidence that productivity gains in perishable healthy foods translate into reduced real prices? A clear example comes from eggs, which are highly perishable and not easily traded, but are characterized by such steep economies of scale that the transition of small backyard production systems to commercial farms results in massive productivity gains. Unsurprisingly, there is a very strong cross-country correlation between greater commercialization in a country's poultry sector and lower egg prices.[21] We also observe declining egg prices in poultry success stories, such as India in the 1990s and Myanmar in the 2000s. In Myanmar, commercialization from 2008 to 2017 resulted in a 35 percent reduction in the real price of eggs and a 30 percent reduction in the price of poultry meat.[22] Whether the same types of real price reductions are feasible for fruits, vegetables, and legumes or for other animal-source foods is less certain, but this is an important area for future research.

INFRASTRUCTURE AND LOGISTICS. The efficiency of infrastructure and transport logistics can also be expected to affect the costs of a healthy diet, because transport and storage are important for enabling both domestic and international trade as well as for reducing food loss and waste. To explore this, we use the World Bank's transport and infrastructure logistics quality index, which ranks countries from 1 (low quality) to 5 (high quality). Figure 3 shows much higher ELD costs in countries with poorly developed transport and infrastructure logistics, while ELD costs fall quite sharply as countries' logistics scores improve. For countries with the worst scores (less than 2.5 out of 5), predicted ELD costs are around $3.00 per capita, but this steadily falls to less than $2.50 per capita for countries with the best transport, storage, and infrastructure logistics scores.[23] Assuming this relationship holds true for future infrastructure investments and reforms, we simulate the impacts of improving transport and infrastructure logistics in LMICs by raising each country's score by a full point, capped at a maximum index score of 3.75 (China's current score).[24] A regression-based prediction suggests that the average healthy diet cost in LMICs would fall by 11 percent, and that the baseline number of people unable to afford a healthy diet globally would fall by 143 million, from 2.66 billion to 2.52 billion.

Of course, improving transport and infrastructure logistics isn't easy or cheap. From 2007 to 2022, World Bank data suggest that LMICs improved their ratings by 0.3 points, but there were also dramatic and diverse individual success stories on this front, notably Rwanda (+1.37 points), Egypt (+1 point), Philippines (+0.94 points), Armenia (+0.82 points), China (+0.8 points), and Viet Nam (+0.7 points). Hence, there does seem to be considerable scope for countries to drive down diet costs – and improve value chain efficiency and economic growth more generally – through ambitious but smart investments in infrastructure, and logistics.

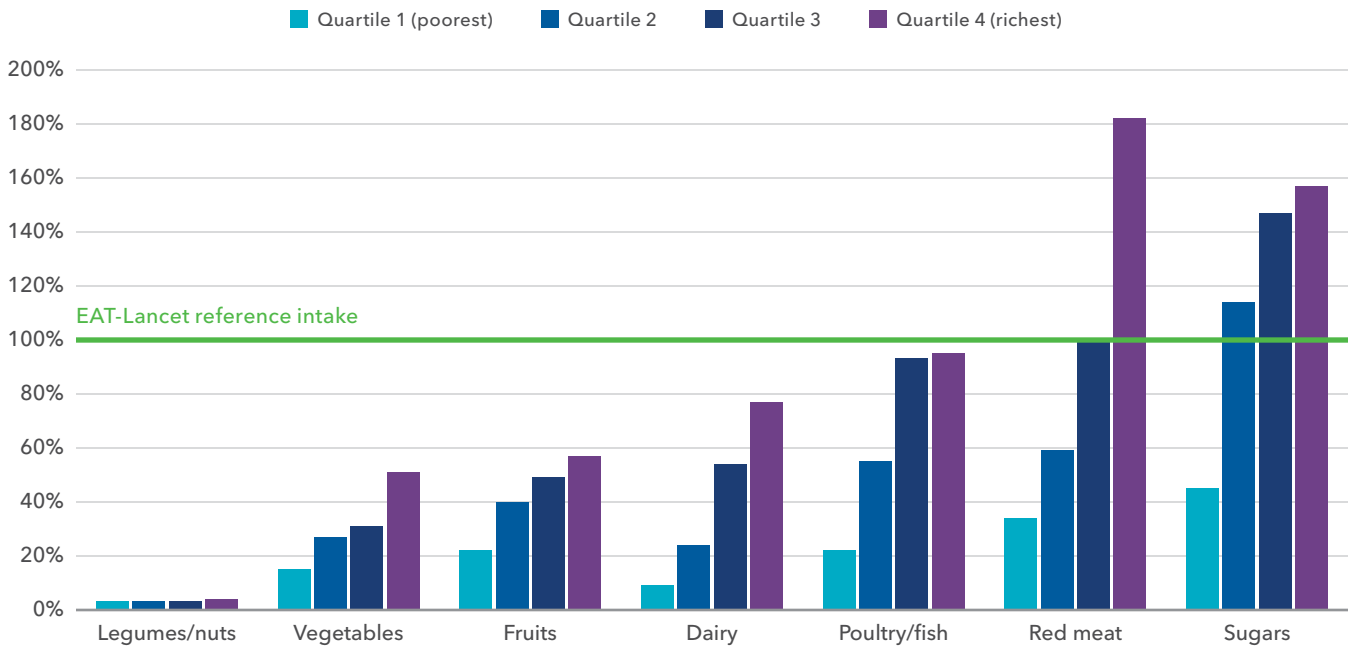
FIGURE 3 EAT-Lancet diet costs by country transport and infrastructure logistics ratings (scaled 0–5)



Source: Authors' estimates from the World Bank's 2017 International Comparison Program food price data in 2017 purchasing power parity (PPP) dollars, and World Bank logistics rankings for 128 countries, including high-income countries as well as LMICs.

Note: The World Bank index ranks countries from 1 to 5 which we present as ranging from low quality to high quality.

FIGURE 4 Consumption availability relative to the EAT-Lancet reference intake levels, by GDP quartile, 2021



Source: Authors' estimates from FAO Food Balance Sheets for 186 countries for 2021.

Note: Quartiles disaggregate GDP per capita from the poorest group (0 to 25th percentile) to the richest (75th to 100th percentile).

THE PREFERENCE PROBLEM

If, tomorrow, all poor people in the world were given the $1.3 trillion required to afford a healthy diet (Table 1), would they actually choose to consume that diet? Or would tastes, convenience, culture, and poor nutritional knowledge – loosely called "preferences" here – prevent a shift to healthy diets? A simple means of exploring this question is by looking at how diets typically evolve as per capita incomes increase, and whether consumption levels of specific foods converge to global recommendations at high income levels. We do this by reporting average per capita food supplies from the FAO's Food Balance Sheets[25] relative to the reference intakes of the ELD, organized by quartiles of GDP per capita (Figure 4). In brief, it appears that latent demand for sugar and animal-source foods is strong (unhealthily so for red meat), but that consumer preferences for vegetables and fruits are relatively weak, while legume and nut consumption is only a fraction of the recommended ELD intake and does not notably increase with GDP. Thus, GDP growth in LMICs would likely lead to only a partial shift to healthy diets (meeting goals for animal-source food consumption), with the underconsumption of legumes and nuts, fruits, and vegetables persisting even with significant economic growth.

Can policies and programs shift food preferences at scale through demand-side or food environment interventions? That is the subject of ongoing research in CGIAR and elsewhere (see Chapters 3 and 5), and much of the existing evidence is limited to quite specific types of interventions, such as programs targeted at mothers of young children, rather than the general population or other groups of interest, such as adolescents. Arguably, one example of success at scale is the promotion of dairy products in Thailand, a country with no tradition of dairy consumption. To support dairy farmers and promote nutrition, the Thai government launched a national school milk program and dairy promotion campaign in the late 1980s.[26] Such was the success of the program that dairy products are now closely associated with improved child nutrition in Thailand, to the point where there are concerns about excess dairy consumption among middle-class children.[27]

POLICY ACTIONS TO ACHIEVE A SHIFT TO HEALTHIER DIETS

We estimated that more than 2 billion people in 128 countries cannot afford the EAT-Lancet diet, and it would cost at least $1.3 trillion per year to provide them enough cash to afford such a diet. The scale of the healthy diet problem is therefore immense, and solving it will require a range of revolutionary actions, rather than any single "silver bullet." We propose six such sets of actions:

IMPROVE THE NATIONAL AND SUBNATIONAL MONITORING OF HEALTHY DIET AFFORDABILITY. This includes actions to improve not only food price data collection and analysis, but also wage monitoring[28] and the wider use of high-frequency welfare surveys, including phone surveys.[29] Such actions will (1) strengthen the economic and nutritional dimensions of early warning systems; (2) improve research, evidence, and knowledge; and (3) provide a stronger platform for nutritional advocacy at the national level.

ACCELERATE MORE RAPID AND PRO-POOR ECONOMIC GROWTH IN LMICS. While LMIC growth rates are partly determined by external forces, there are many reforms that countries can implement to catalyze faster and more equitable growth.

REALIGN AGRICULTURAL POLICIES AND INVESTMENTS TOWARD NUTRITIOUS FOODS (including fortified foods and other processed foods) to make healthier, nutritious diets more affordable, through either price or income mechanisms. Repurposing agricultural policies to support healthier diets is one critical component; another involves strategically reforming the composition of agricultural investments toward high-return non-staple foods, especially perishable nutritious foods that offer potential to reduce retail prices for consumers. Economic modeling tools can be used to assess synergies and trade-offs between nutrition objectives (dietary changes) and economic and environmental objectives.

SCALE UP INVESTMENT AND REGULATION OF INVESTMENTS IN TRANSPORTATION, INFRASTRUCTURE, AND LOGISTICS SYSTEMS relevant to domestic *and* international trade in food and agriculture. This entails not just hard infrastructure investments, but also a focus on developing efficient businesses in the "hidden middle" of the food system, namely transport, logistics, storage, processing, and other wholesale trading functions.

SCALE UP NUTRITION-SENSITIVE SOCIAL PROTECTION IN LMICS in terms of coverage, size, nutritional adequacy, and comprehensiveness of transfer packages and the intensity of nutrition education interventions. We know that nutrition-sensitive cash and food transfers can be particularly efficacious for mothers and children; we need to know more about the effects of nutrition-sensitive social protection on other demographic groups.

SCALE UP "DOUBLE DUTY" INTERVENTIONS TO INCREASE DEMAND FOR HEALTHY FOODS AND DECREASE DEMAND FOR UNHEALTHY FOODS. Evidence on large-scale efforts to shift consumer preferences is admittedly limited (see Chapters 3 and 5), although there are indications that school-feeding programs have helped sustain healthy preferences into adulthood, such as dairy programs in Thailand and other Asian countries. More evidence and experimental programming are needed.

In the context of a nascent scientific literature, we do not claim that there is exhaustive evidence to quantify the impact of these actions individually or together: more systematic research on these questions is greatly needed. Nevertheless, it seems clear that any single set of actions could not solve the problem within a desirable timeframe. Achieving convergence toward healthier diets in LMICs requires a combination of aggressive actions on multiple fronts — it requires a revolution in the way we think about food policy's fundamental role in providing healthy diets, for all people, at all times.