



# Supporting Consumer Choices Toward Healthy, Safe, and Sustainable Diets in Low- and Middle-Income Countries

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Food systems and diets are transforming rapidly in many parts of the world, particularly in low- and middle-income countries (LMIC). Changes in income, employment, taste, and location have direct implications for food choices and shopping patterns, which in turn have impacts on consumers' nutrition and health, as well as environmental sustainability and resilience of the food system.

Some of the more notable trends are changes in retail outlets and changes in type of food consumed. Food purchased at modernized retail outlets makes up an increasing share of household budgets, but informal markets remain important for fresh food purchases. Especially in urban areas, ready to eat food sold at the roadside or in small restaurants are relevant sources of food.

Rising incomes lead to increased demand for perishable and animal-sourced products, whereas urbanization is associated with rising demand for convenient processed foods. Traditional consumption of cereals and starchy crops is complemented with fruits and vegetables, pulses, dairy, poultry, and fish that contribute to diversified diets and provide necessary vitamins, proteins, and minerals. These products are, however, generally more expensive, vulnerable to quality degradation, and face major safety risks. Moreover, large swathes of the population in LMIC are inclined to increase consumption of energy-dense processed foods readily available from fast-food chains, street vendors, and retail outlets. Malnutrition persists in many forms: in addition to undernutrition and micronutrient deficiencies, overweight and obesity lead to a rise in noncommunicable diseases.

The demand for more nutritious food to nourish a healthy and productive global population cannot be met without fundamental changes in the organization and governance of food systems.

## Key Consumer Choice Messages

- Consumer demand for fresh, perishable, and healthy but risky foods is increasing.
- Most fresh foods are sold in informal markets, and this will continue to be the case.
- Prices, habits, beliefs, and convenience influence consumers' food choices.
- Consumers generally have poor understanding and perception of food safety risks.
- Effective food interventions align upstream and downstream segments of value chains.
- Front labels can influence consumer choice but have more effect on the food industry.
- Taxation for reducing fat, sugar, and sodium content can help control overweight and obesity.

Research focuses on the identification of suitable public incentives and business innovations for providing access to safe food and healthier diets. This includes understanding consumer perceptions of the safety of processed foods and brands versus potential negative nutritional outcomes from ultra-processed food consumption. For healthier diets, however, complementary fresh foods despite their safety concerns remain critical.

Diets should meet nutritional needs and health concerns, not contribute to food-associated noncommunicable diseases (such as diabetes type 2) and be delivered within environmental boundaries. Consumer choices do not always prioritize these criteria, and policies should be in place to overcome critical trade-offs between health, safety, and sustainability objectives.

With respect to **healthy diets**, poor consumers mostly focus on energy-rich diets that have a high content of starchy staple foods. Access to more nutrient-dense products (such as vegetables and animal-sourced foods) only increases with higher income. Dietary diversity tends to be low and intake of cheap ultra-processed foods is rapidly increasing. In some countries, food-based dietary guidelines (FBDGs) have been developed to support healthier diets. These may shape food choices in social protection and school feeding programs and guide public sector food procurement. Initiatives for food labelling and product information are increasingly used to support healthier consumer choices.

In the field of **food safety**, the best estimates from the World Health Organization show [a global health burden of foodborne diseases](#) comparable to that of malaria, HIV-AIDS, or tuberculosis, with around 98 percent falling on LMIC. Priority hazards include heavy metals and biological contamination. The top five hazards were: lead, non-typhoidal salmonella, salmonella typhi, enteropathogenic *Escherichia coli*, and pork tapeworm. In LMIC, foodborne disease costs more than [US\\$100 billion a year](#), mainly from productivity loss. The public health and domestic economic costs of unsafe food may be 20 times the trade-related costs for developing countries. Yet most investments have been in trade and/or focused on hazards of low public health burden, such as pesticide residues and aflatoxins. Food safety interventions mainly focus on infrastructure and regulation, while technological innovations try to improve traceability and product shelf life. Little attention is given to consumer perception, preferences, and incentives for behavior change.

Public concern and consumer's attention for **sustainable diets** is gradually increasing. While traditional diets may generate rather limited emissions, upgrading of diets with more fresh and animal-based products puts increasing pressure on the natural resource base. Food losses and waste also contribute to further degradation of the environment. Consumers in LMICs are not always aware of these externalities, and their [willingness to pay for more sustainable food products](#) may be limited. To reduce the environmental burden of animal-based products a shift from animal to plant proteins (algae, seaweed, etc.) is sometimes advocated. Taxes that are proposed for reducing emissions at the producer end may be easily transferred to consumers through higher food prices.

Societal demands and consumer preferences for healthy, safe and sustainable food are difficult to promote only through market mechanisms. Therefore, combined approaches that incorporate enforcement and nudges, such as the development of [food-based dietary guidelines](#) (FBDG) in combination with labelling or taxes, alongside greater understanding of consumer capacities, willingness to pay, and knowledge about what constitutes a healthier and sustainable diet, are needed.

## Current Insights and Lessons Learned

Food system analyses are helpful to understand key drivers for changes in consumer behavior and to identify effective incentives for supporting healthier, safer, and more sustainable diets. Most attention is given to practical tools for influencing consumer choices, either through market linkages or using peer networks. While many programs for improving diets rely on demand-side targeting toward particular groups of consumers, research evidence increasingly suggests that simultaneous adjustments in the [food environment](#) may be required to support [healthier, safer, and more sustainable food choices](#). Policies that [combine](#) demand incentives with supply-side restrictions are particularly effective for steering consumers to choose healthier diets. The [combined effect](#) of messaging and incentives also appears to have positive outcomes. Finally, combining positive incentives and negative restrictions has proven to be a particularly [effective strategy](#) for supporting healthier and more sustainable food choices.

Product labelling and certification are sometimes supported to influence consumer choices. Voluntary labels (ecofriendly and fair trade) lead to some market segmentation but only result in marginal increase in consumer demand. Otherwise, [sugar taxes in Mexico](#) and food warning [labelling in Chile](#) seem to indicate reduced consumption of sugary beverages as well as ultra-processed foods. Interestingly, some of this is due to consumer behavior change, while some is caused by reactive product reformulation by food companies. Other nudging initiatives try to support habit formation toward healthier foods.

Efforts to reduce undernutrition mostly focus on improving food access and availability, combined with education and training for better nutrition, childcare, and sanitation practices. Specific incentives such as cash transfers or vouchers can mold demand-side behavior. Addressing micronutrient deficiencies, on the other hand, requires a whole diet approach, even while specific deficiencies could be reduced through public and/or private investment in (bio)fortification. Reducing risks of [overweight and obesity](#) requires above all wider reforms in the food environment, including logistic efficiencies, reduced loss and waste to ensure greater availability of fresh food, better nutritional information, and incentives for [moderating the intake](#) of ultra-processed foods.

Differentiated interventions are needed to reach diverse populations. Reaching mothers of young children – especially during the first 1,000 days of life critical for early brain development – can best be pursued by making food products and nutritional information on topics such as breastfeeding available at [particular outlets](#), including childcare centers. [Adolescents](#) need a different approach based on norms created within their particular social groups and support to their direct living

environments (neighborhoods, schools, workplaces). Focusing on [women's empowerment](#) for improving nutrition requires an approach that addresses asset ownership, intra-household decision-making, and community norms and practices.

In many food systems, [market-led incentives](#) mainly influence food choices. Modifying prices through taxes or subsidies, as well as different types of [food labelling](#), provides incentives for adopting healthier or more sustainable diets. Interventions focused on changing the food environment are used to guarantee food safety and to harmonize food standards but may also be applied to enforce voluntary guidelines. Recent analyses of food choice behavior recognize food preferences are strongly influenced by these [contextual factors](#).

Consumers are linked in different ways to places and networks where access and intake decisions about (healthier) foods are made. At the household level, factors like age, gender, education, and wealth influence food consumption, while socio-cultural norms guide intra-household distribution. At the [neighborhood](#) level, retail diversity resulting in food deserts and food swamps with outlets only offering highly-processed options are usually found in impoverished areas where residents have low purchasing power. At all levels, consumers receive food marketing messages extolling the virtues of "modern" food (i.e., safe, convenient, trusted, cheap, etc.) to increase consumption of ultra-processed options. Understanding the interplay of consumer psychology and food environment as it pertains to food choice remains of critical importance.

The economic burden of unsafe food is systematically linked to economic development and dietary transformation processes. But humans are poor at assessing risk and often focus more on hazard. As a result, consumers tend to particularly fear man-made chemical hazards more than is warranted and underestimate the health risks related to processed foods.

The private sector plays a central role in assuring healthy, safe, and sustainable food choices. In many LMIC, a "push" approach still predominates, focusing on the public sector and trade goals. Leveraging consumer demand for food safety can be challenging. The assumption that mass market consumers would pay a premium

for safer food has often proven wrong. Studies of consumers in Africa found informing people about food safety and providing safety labels or certificates [were rarely successful](#), partly because there is little [trust in governance](#). Giving people direct information from trusted actors on food safety (e.g., by doing chemical tests in households) was more effective but difficult to scale.

## Outlook and Research Priorities

To support better consumer choices, research efforts should address key knowledge gaps and policy implementation pathways. Consumer choice will be central to driving impacts pathways for economic, environmental, health, and social food system outcomes. This requires systematic data gathering from robust, real-time, and reliable impact studies.

Research can be oriented toward measuring direct impact of [prices](#), [information](#), and [market incentives](#) for changing consumer behavior, and to identify "[nudging](#)" [strategies](#) that influence buying and eating behavior of different categories of consumers, including the targeted use of vouchers. [Evidence](#) increasingly suggests that peer groups and [social norms](#) strongly influence individual responses to incentives. Adjustments in the [food environment](#) appear to be particularly impactful for changing nutrition patterns. When people have credible information that food contains hazards, they will avoid it. Little is yet known about the relative importance of and the possible interactions between these different impact pathways.

One option for increasing food safety in LMIC lies in greater value chain transparency. Significant experience with export-focused traceability systems exists but few have translated into domestic food supply. Costs, standards, and governance





## Lessons Learned on Consumer Behavior

- Behavior change communication (BCC) plays an important role in changing consumer preferences, but effects are easily lost and spill-overs to other stakeholders remain limited.
- Interventions that focus on improving convenience, such as home delivery of vegetables, and nudging generate a large consumer response.
- Improving healthier and sustainable food choices is most seriously hindered by prohibitive prices of fresh vegetables and animal-sourced products.
- Providing technical training to farmers and traders has limited effects on food quality and safety if marketing networks remain unchanged.
- The impact of labelling and certification for fair prices, living wages and more sustainable practices remain limited due to limited willingness to pay.

constitute significant barriers to adopting existing systems in domestic markets. [Recent International Finance Corporation \(IFC\) investments](#) in Kenya seek to remedy this by promoting uptake of Global Good Agriculture Practice standards for domestic fruit and vegetable production. This model likely implies a shift toward larger producers, highlighting potential trade-offs between food safety and social inclusion, but further research is needed to understand the interplay between traceability and consumer willingness to pay.

Greater data collection and analysis is urgently needed to understand the interplay between food environments, specifically traditional or informal market systems, and consumer behavior and food choice. Traditional market channels remain under-researched with [few exceptions](#), yet they constitute the terminal market for most producers and feed the majority of (poorer) consumers in LMIC. For example, most of the rapidly growing [dairy sector in East Africa](#) remains informal. Informal actors have lower transaction costs and consumers prefer the lower price and creamier taste of fresh milk. Nearly all urban consumers boil milk for reducing risk.

Critical research needs include understanding the relative importance of food access, affordability, and acceptability in

traditional channels in countries at different stages of food system transformation. Equally, much remains to be done on understanding the importance of public guidelines (i.e., FBDG, food safety standards) and private promotional strategies (i.e., marketing) for influencing consumer decision-making in these spaces. Finally, the increasing role of processed and prepared foods requires that we expand our analysis to incorporate both fresh foods and the growing number of convenient, if not necessarily healthy, foods on offer in these food environments.

As food systems transform in response to demand, and value chains become complex, opaque, and difficult to manage, the possibility that poor practices will create health risks grows. This can include not only foodborne disease risks but also other externalities such as epidemics of human or animal disease, like the incursion of African swine fever into Eurasia and the COVID-19 pandemic. Surveillance and early response are key to managing these crises: rapid responses can reduce costs by 90 percent. However, unless there are fundamental changes to agricultural systems, outbreaks will continue and even intensify.

Food safety is closely linked to nutrition, partly because some of the most nutritious foods are the riskiest, and food and health scares can push people to eat highly processed food. It may be easier to convince people not to eat unsafe food than to eat nutritious food. Over the last 100 years, high-income countries (HIC) have moved from a very unsafe food system to a relatively safe system. However, while some HIC have succeeded in changing some food-related behaviors, none have reversed the increase in overweight and obesity.

To reduce malnutrition in all its forms, decisive measures are required in the food environment. ICT devices can be useful to support access to healthier food choices. For processed and prepared food and out-of-home consumption, broad implementation of restaurant menu information, front-of-pack labeling, and reducing or eliminating marketing targeted at children should also be promoted. On the consumption side, public sector actors can continue to promote FBDG along with judicious use of taxes, mass media, and other measures to deter consumption of highly unhealthy foods. Finally, innovative public-private partnerships to support national small and medium-sized food enterprises to develop and market healthier processed convenience foods are urgently needed.

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