



Improving affordability of nutritious foods through packaging innovations

BUSINESS MODEL FEATURES FOR REACHING LOWER-INCOME CONSUMERS WITH NUTRITIOUS FOODS

The **GAIN Business Model Research Project** aims to identify promising business models to reach lower-income consumers with nutritious foods. This brief summarises the results of a rapid review undertaken to build evidence on this topic.



Serving lower-income consumers: the business and nutrition opportunity

Lower-income consumers represent a large market, estimated at 4 billion people worldwide. Many low-income consumers' diets are lacking in food diversity and quality. There is a business opportunity for private companies to help improve this by providing safe, nutritious foods that meet customers' needs at an affordable price – as long as they do so in ways that are profitable and financially sustainable for the company.

- **Packaging can keep foods safe; help make them appealing, convenient, and long-lasting; and convey key information about them to consumers**
- **At the same time, packaging (particularly plastic packaging) is an important contributor to food system waste, with an estimated two-thirds of packaging waste being food-related**
- **Packaging costs are also a major driver of certain foods' prices in low- and middle-income countries**

Innovating with packaging is thus one potential way to help contribute to SDG 2's aim of ending hunger and all forms of malnutrition as well as SDG 12 on sustainable consumption and production.



This brief explores three options for innovating with packaging to try and improve the affordability of nutritious foods: using small package sizes, using reusable packaging, and selling products in bulk, without packaging. It is based on a working paper by GAIN and Inclusive Business Partners.

AFFORDABILITY PROPOSITION

Small package sizes can make nutritious food more accessible by selling a small quantity of a product at a lower price than the normal package size, enabling purchase despite very low or variable levels of income. **Reusable packaging** spreads the cost of packaging over many uses, helping to cut costs. In **bulk purchasing**, food is sold loose from large containers, eliminating the need for packaging (or shifting the onus for providing it to the consumer) and allowing consumers to buy as much or as little as they want, sometimes resulting in significant cost savings.

COSTS

In addition to the costs of the material itself, packaging-related costs include design, equipment, and labour costs. **Small package sizes** tend to have the highest per-use cost as a share of the product's retail price, often above 20%. For **reusable packaging**, the costs of

WHAT MATERIALS ARE USED IN PACKAGING?

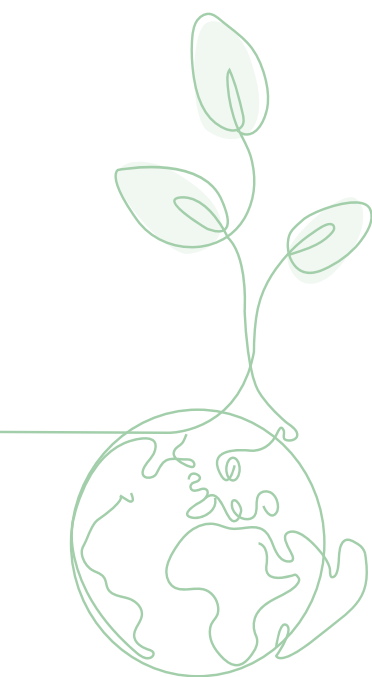
Small-size packages are usually made of flexible or semi-hard plastics or laminated films containing metal and plastic; **reusable packaging** and **bulk dispensers** are usually made from glass, metal, or hard plastic. Each material presents distinct advantages and challenges. Plastic is widely available, lightweight, and non-fragile, making it feasible for many products. Glass, while widely produced, incurs high transportation and handling costs, limiting its economic feasibility in low-income markets. Paper-based packaging for dry foods is widely available and easy to make, transport, and store; paper-based cartons for dairy products and other liquids are less available. Biodegradable plastics, though environmentally friendly, face limitations in availability and local manufacturing capacities, entailing higher costs.



the packaging itself tend to be much lower once spread across many uses – but the costs of systems to collect and clean the packaging after use can be considerable. **Bulk packaging solutions** tend to be low cost, with relatively cheap dispensers' costs being spread over many uses. However, cheaper dispensing systems (like barrels or bins) also tend to have higher risk of contamination than more costly systems (like automated liquid dispensers for milk or oil).

FOOD SAFETY

There are two potential ways packaging affects food safety: the packaging's ability to keep food safe from contaminants and the risk of the packaging itself contaminating the food. Considering the first, **small-size packaging** has strong advantages when done using high-quality industrial packaging machines (as opposed to informal 'bulk breaking'); **reusable packaging** can also be very safe, as long as it is adequately cleaned between uses. **Bulk sales** entail relatively high risk of contamination, both prior to and after the product is sold. Considering the risk of packaging itself contaminating food, glass tends to have a low risk of leaching contaminants into food, whereas that associated with metal and particularly plastics is higher.



ENVIRONMENTAL IMPACT

Overall, the environmental impact of packaging is usually relatively small compared to the overall environmental footprint of the food chain, but packaging waste, in particular, does lead to non-negligible environmental pollution that can be very visible. For **small package sizes**, the packaging involved is almost always single-use and thus often results in higher levels of waste; the production of the plastics involved also tends to be relatively emissions-intensive. Emissions and waste associated with **reusable packaging** are lower, and those for **bulk sales** are even lower – though this also depends on how consumers choose to store the bulk goods they purchase.

CONSUMER ACCEPTANCE

Small package sizes are widely valued by consumers for convenience, ease of use, affordability, portion control, and food safety reasons; however, the associated waste causes concerns among some consumers. **Reusable packaging** and the packaging reduction associated with **bulk sales** are perceived positively by sustainability-minded consumers, but many also see practical challenges with having to provide and clean their own packaging (in bulk sales) or to return it for cleaning (in reusable packaging models). For bulk sales in particular, there may be consumer concerns related to food safety, adulteration, or food fraud.

All three packaging innovations thus have advantages and disadvantages, with none delivering across all considerations. Companies need to carefully consider the options available locally and the associated feasibility and suitability for their target products and customers. **It is clear that there is scope for more innovation to develop new packaging approaches that can provide flexibility, convenience, safety, and environmental sustainability – all at an affordable price for lower-income consumers.**

To Learn More:

Pérez Aponte et al. 2025 Improving affordability of nutritious foods through packaging innovations. GAIN Working Paper #47. <https://doi.org/10.36072/wp.47>

Nordhagen & Demmler. 2023. How do food companies try to reach lower-income consumers, and do they succeed? Insights from a systematic review. Global Food Security.

While we hope this offered useful advice, users should always consider their company's circumstances when adopting new approaches – and make sure that they are used as part of a broader viable business model. The information featured here comes from a rapid, global review and will require additional local validation in each context.