

# BUSINESS MODELS FOR REACHING LOWER-INCOME CONSUMERS WITH NUTRITIOUS FOODS



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## **ABBREVIATIONS USED**

BoP - Bottom of Pyramid

NGO - Non-governmental organisation

LMICs - Low- and middle-income countries

LMD - Last-mile distribution

SME - Small- or medium-sized enterprise

SUN - Scaling Up Nutrition (Movement)

## **APPENDIXES**

The following appendixes are available online:

- [Appendix 1](#) - Detailed Search Methodology
- [Appendix 2](#) - Papers and Reports Identified as 'Highly Relevant' (and used as the basis for the citation / reference list screening)
- [Appendix 3](#) - Methods and Results for the Search for Non-Food Food-Like Products
- [Appendix 4](#) - Classification of Evidence Quality

## EXECUTIVE SUMMARY

Lower-income populations in low- and middle-income countries (LMICs) often face challenges accessing affordable, desirable, safe, and nutritious food, contributing to poor diet quality and malnutrition. As the main source of food for the majority of this population, private-sector firms have the potential to play a key role in alleviating this – and if they can do profitably, could help their bottom line in the process. However, little is known about the specific approaches they can use for doing so, or about how effective those are. To help fill this gap, this study seeks to identify the business model features that companies use to reach lower-income consumers in LMICs with food products. This is done through a systematic review of research as well as a scoping review of real-world companies.

After reviewing about 8,000 titles, 74 documents were deemed eligible for inclusion in the systematic review, mostly reporting on case studies of specific approaches, while the firm scoping uncovered about 99 eligible firms, primarily in East and Southern Africa and South Asia. These covered a diverse range of food types and included both SMEs and large multinational firms.

The review found that, at a conceptual level, lower-income consumers can be reached through adaptations to the product, to the branding and marketing, and to the distribution and retail model; it also noted that scaling was an essential but difficult consideration, with several options proposed for reaching scale. In addition to these cross-product considerations, the literature makes clear that there are a number of challenges with marketing nutritious foods, specifically – including limited demand and awareness, lack of trust and issues with labelling, risk aversion, low willingness to pay, and challenges with ensuring frequent consumption. The review also uncovered 13 specific business model features that firms have used to reach lower-income consumers with food products: Cross-subsidisation, increasing value through convenience, use of waste products, less desired parts, quality segmentation, cheaper ingredients, small sizes, selling in flexible quantities, no or reusable packaging, distribution hubs, bespoke last-mile distribution networks, providing new support to existing retail/distribution networks, and direct sales in underprivileged areas. None of these features alone can ensure success with either reaching lower-income consumers or doing so in a financially viable way: each feature needs to be supported by the other aspects of a solid business model, and companies often adopt multiple different features at once.

While the review did not limit its scope to only examining models used by SMEs, all business model features identified were used by SMEs. Similarly, the review did not limit its scope to only examining specific foods, but the results do not suggest that vastly different business model features are needed to successfully reach lower-income consumers with highly nutritious foods as opposed to less nutritious ones (aside from the issues summarised above).

The review also made clear that there is a considerable deficit of high-quality evidence on the ability of the business model features discussed here to actually reach lower-income consumers, and additional rigorous evaluation of these approaches is needed, considering their reach to lower-income consumers, their impact on those consumers' diets, and whether or not this is done profitably.

## 1. INTRODUCTION

Nutrition plays a foundational role in achieving optimal health and wellbeing throughout the life course, and thus in meeting numerous other social development goals (1). In turn, the foundation of good nutrition is consuming a healthy diet – meaning one that is health-promoting and disease-preventing, providing adequate but not excessive nutrients, and avoiding health-harming substances (2). However, poor diets are common throughout the world, with dietary risks responsible for an estimated 22% of global deaths (3). This is particularly true in low- and middle-income countries (LMICs). For example, about 70% of young children in Africa and South Asia do not consume a diet of minimally adequate diversity, and about 30% of adolescents in these regions do not eat vegetables even once a day (4). Within these countries, there is considerable variation in nutrition outcomes across socioeconomic groups, with the burden of undernutrition (though not overweight/obesity) highest among lower-income groups (5).<sup>1</sup> Diet quality also tends to be poorer in lower-income groups; for example, achievement of minimal dietary diversity standards among young children in Kenya is 3.3 times higher for children in the top wealth quintile than those in the bottom wealth quintile; the ratio is 2 in Bangladesh and Nigeria, 2.4 in Ghana, 2.6 in Mali, and 4.2 in Pakistan (8-12).<sup>2</sup> More detailed data from the United States confirm that diet quality of adults also tends to increase with income level (13,14). To improve diet quality among lower-income consumers, they must have access to safe, nutritious foods in desirable forms and at affordable prices. This is currently a challenge across many areas: it is estimated that 3 billion people worldwide are unable to afford a healthy diet (15).

Private-sector companies play a key role in shaping food availability and affordability. Even for low-income households in rural, agricultural areas, more than 40% of food (by monetary value) is purchased, and purchases make key contributions to the quality of rural diets (16,17). For those in urban areas, less than 15% of food comes from own production – even for the poorest group (18). Food purchasing is only expected to increase in LMICs in the future (19,20). For some of these people, the ‘extreme poor’, purchasing more nutritious foods is truly out of reach: their incomes do not even allow them to purchase a basic energy-sufficient diet. However, this group tends to be small outside of emergency contexts, rarely exceeding 10% of the total population.<sup>3</sup> For the remainder of the population, private companies could play a role in improving diets by bringing more safe and nutritious products to market, in forms that are appealing and affordable to consumers. Analysis of food purchasing patterns across income groups has confirmed this potential for improving diets through private-sector companies’ products, particularly in South Asia and for animal-source foods (21).

Meeting customers’ needs may also benefit companies’ bottom lines. The ‘Bottom of the Pyramid’ (BoP) marketing argument, developed in the early 2000s, holds that lower-income consumers, in addition to needing access to higher-quality goods and services, represent a latent market with considerable future growth and innovation potential for firms (22,23).<sup>4</sup> The BoP was also identified to be a large market, estimated at 4 billion people worldwide and the majority of the population of Africa, Asia, and Latin America (26,27).<sup>5</sup> Targeting these consumers – particularly those who are not the ‘poorest of the poor’ but rather fall

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<sup>1</sup> For example, multi-country analyses have shown that stunting prevalence is significantly higher among children in the poorest households than those in the richest—e.g., an average of 2.47 times higher in an analysis of 79 population-based surveys conducted between 2000 and 2012 (6). In the average LMIC, the prevalence of malnutrition (as measured by a composite index of growth) in children under three is 20 percentage points higher among those in the poorest wealth quintile than among those in the richest – and this gap has remained stubbornly unchanged over the past three decades (7).

<sup>2</sup> Using Demographic and Health Survey data: Ghana – 16.3% of children in lower-wealth quintile achieve minimum dietary diversity versus 39.7% in highest; Kenya – 19.2% v. 62.7%; Mali – 16.6% v. 43%; Bangladesh – 27% v 55.7%; Pakistan 7.8% v 33.1%; and Nigeria – 16.9% v. 34.7%.

<sup>3</sup> There are some exceptions to this in Africa, such as Angola (35%), Benin (19%), Burundi (36%), CAR (39%), Congo (28%), DRC (15%), Guinea Bissau (34%), Liberia (24%), Madagascar (23%), Nigeria (33%), South Africa (18%), Togo (64%), and Zambia (29%) (15).

<sup>4</sup> The pyramid in question is the economic pyramid, an illusion to the anti-poverty remarks of Franklin Roosevelt (24). A related approach is ‘inclusive business’, which aims at integration of lower-income populations in a broader sense, as producers, entrepreneurs, and staff as well as consumers (25).

<sup>5</sup> Based on an annual income threshold of less than 3,000 USD PPP.

below global poverty lines but still have some disposable income (27) - could thus benefit private-sector firms.

The BoP marketing approach has been criticised for exploiting lower-income consumers to obtain corporate profits, as opposed to supporting entrepreneurship, income growth, and development within poor communities; for excluding certain groups; for ignoring root causes of poverty and exclusion; for promoting goods that do not improve welfare; for de-emphasising the role of governments in providing basic infrastructure and services; for overstating market size; for not being scalable; and for not actually yielding profitable business models (28–35). Within nutrition specifically, such approaches have been critiqued for excessive ‘medicalisation’ of nutrition problems (i.e., reducing malnutrition to a question of nutrients, to address through fortification or similar), being biased towards the agendas of companies as opposed to local needs, and not addressing root causes of malnutrition (36). However, BoP marketing has also seen considerable uptake, including by businesses (37). The argument is particularly appealing for the food sector: food represents the largest share of lower-income consumers’ spending and is thought to be the largest BoP market, estimated at USD 2.9 trillion in 2007 (26).

Meeting both business and low-income consumer needs simultaneously, however, requires developing a viable business case that can address consumer demand in a financially sustainable way. That is, the model must enable the private-sector actor to capture value (thus allowing them to turn a profit and continue to function) while still providing the food at a price the customer is willing to pay, despite their low income. This may require novel approaches, as the needs and capacities of lower-income consumers can be different than those of higher-income consumers (22,23,26).

**This report thus seeks to identify promising business model features for reaching lower-income consumers with nutritious foods.**<sup>6</sup> This is done through a review of peer-reviewed research, ‘grey’ literature, and actual companies’ approaches. To set up that discussion, the next section briefly considers the literature on what lower-income consumers are looking for in food products. Section 3 then describes the review methodology, including key concepts and definitions. Section 4 summarises the breadth of studies and firms found and the overall state of the evidence. Section 5 considers findings at a general, conceptual level, which Section 6 details 13 specific strategies used to reach lower-income consumers. Section 7 discusses these results, their limitations, and their implications.

### 3. LOWER-INCOME CONSUMERS’ NEEDS

Individual-level drivers of food choice include psychological factors (e.g., mood, preferences, pleasure), sociocultural factors (e.g., traditions, taboos, beliefs, habits), sensory appeal (e.g., taste, smell, appearance), health and nutritional perceptions (e.g., nutritional value, perceived health benefits), ethical concerns (e.g., animal welfare, environmental impacts), social interactions (e.g., peer and parental influence), and socio-demographic aspects (e.g., income, education) (38). These drivers intersect with aspects of the food environment, such as availability, affordability, and food promotion, to affect choice (39). Such factors operate across socioeconomic groups, such that lower-income consumers do not seek or consume foods with characteristics wholly different to those sought by higher-income consumers (40). In addition, lower-income consumers are a very large and very diverse group, about which it is difficult to generalise.

However, there are some key ways in which lower-income consumers tend to differ from higher-income consumers. First, and most obvious, is that affordability represents a more serious constraint: while higher-income consumers may want to obtain ‘good value’ or save money when purchasing food, lower-income consumers do face more absolute limits on what they can spend (41). These income constraints tend to lead lower-income consumers to place a greater weight on foods that will be satiating and provide high

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<sup>6</sup> While the review focuses on all food products, interpretation considered the ‘nutritious’ aspect: e.g., for any business models found to work for non-nutritious foods, the analysis considered whether the approach could also be applied to nutritious foods.

value for money (42-44). This can include consideration of how long food will last (i.e., before spoiling, or before being used up); whether a package contains more than is required in the short term (thus increasing short-term, if not long-term, cost); and whether additional complementary ingredients or inputs (e.g., cooking fuel) are needed to prepare it (again, increasing cost) (41). Lower-income consumers also tend to be risk-averse, as they have little margin for error within their budgets (45-48): while food may be a low-stakes purchase for upper-income consumers, for lower-income consumers, every purchase may be seen as important and subject to consideration (47). For food in particular, this includes being highly sensitive to the risk of food wastage – due to spoilage, to not aligning to household preferences (e.g., with a new type of food), or to being poor quality – as that waste represents lost value (22,41,49). Lower-income consumers may also choose to purchase food from less formal outlets where they can bargain for prices or use credit (e.g., traditional markets as opposed to supermarkets) (50).

Besides facing income poverty, lower-income consumers (particularly women) also often face *time poverty* – having too many things to do relative to the time in which to do them (51-53). This can both lead to having less time to make decisions about procuring food, fostering sub-optimal choices and greater reliance on heuristics (54), and to placing added weight on *convenience* of food (e.g., preferring ready-to-eat or fast foods) (49). In addition, behavioural economics research suggests that facing scarcity (i.e., being poor) can reduce the bandwidth available for making decisions, leading to sub-optimal choices (54). Some lower-income consumers also have lower levels of education or media access, which may influence their choices, including by making them more dependent on information from local sources (like their local retailer) and personal contacts (55).

In addition, ‘aspirational consumption’ has been widely documented among lower-income populations, driven by a desire to match upper-class lifestyles, to increase well-being, and achieve social status within the community, among other reasons (56). Food can be seen as a marker of social status, and aspiring to a higher-income lifestyle can translate into aspiring to eat the foods of higher-income groups (22,57) – e.g., preferring packaged snacks to traditional dishes. Food can also fill an emotional need, being one of the most affordable ‘treats’ (particularly to give to children) that a low-income person can afford (49). This aspirational aspect can be particularly strong with foods for children: parents often want to give their children ‘the best’, which some may proxy by ‘what the rich eat’ (58). Some lower-income consumers may avoid products that are seen as marketed ‘for the poor,’ sold at cheap prices, or given away for free, assuming they must be low quality (48,59); others may avoid upscale-looking products or retail outlets, assuming the products will be expensive or they will be unwelcome to shop there (60,61). However, they may also prefer a lower-quality product at a cheaper price to a higher-quality one that they cannot (or can rarely) afford (62): premium aspirational food brands can be ten times as expensive as traditional, basic, non-, or local-branded food (63).

Evidence on whether lower-income consumers are loyal to or prefer brands is mixed but overall suggests that they are, and are often willing to pay a premium for preferred brands (48,64). This is likely partially related to risk-aversion (i.e., having confidence that the branded product will deliver and not be a waste) as well as aspirational consumption counter-balancing the higher price typically charged by such brands (65). Demonstrating social status by purchasing (and perhaps visibly consuming) the higher-end brand may also play a role (48). In addition, there are often various alternatives between the global premium brand and the cheapest possible local alternative, such as local brands, and the cheapest brand in the category is often not the most popular among lower-income consumers (48). As one analysis put it, ‘Customers usually want the tastiest, most nutritious and convenient product they can afford – not necessarily the cheapest one on the market. And they are ready to pay a premium for this additional perceived quality’ (p. 27) (63).

In addition, *variability* of income is also important for lower-income shoppers in LMICs, particularly those dependent on seasonal occupations, casual labour, or daily wages or tips (66,67). *Unpredictability* (which implies variability but with the added challenge of not knowing what that variation will be) is particularly

acute for casual labourers, those with uncertain employment, those working in mining and fishing and other jobs dependent on a daily 'catch' (68), and those on daily wages. Exposure to income shocks (e.g., health issues) also results in unpredictability of income available for food, particularly in the absence of functioning insurance and other social safety nets. High variability in income can lead to high variability in consumption (69-71).

Ironically, many lower-income consumers currently pay higher prices per unit than do their upper-income peers (either in actual costs or in effort and time) and often receive lower-quality goods - what has been referred to as the 'poverty penalty' (22,26,27,72). This occurs due to local monopolies, poor access and distribution, poor infrastructure, limited economies of scale, high transaction costs, and strong intermediaries (22). One key distinction between the 'relatively poor' and the extreme poor is the ability to buy in bulk: those with both sufficient cash on hand and sufficient storage space (protected from pests or theft and refrigerated if needed) can purchase in bulk and save on per-unit price, as well as shopping time, and thus may prefer larger packaging ('value packs'), whereas poorer households without adequate infrastructure cannot (23) or may prefer not to in order to avoid over-consumption (73). They thus face higher per-unit prices.

With this general background in mind, the next section explains the methodology used in the review of business model features for reaching lower-income consumers.

## 4. METHODOLOGY

The review adopted a systematic approach to its search of peer-reviewed and grey literature (74,75), complemented by a 'scoping review' approach for the firm search. The scoping review approach was chosen due to the nature of the research question, which did not require identifying every firm that targets low-income consumers but rather assessing enough to capture the main business models used (76). The development of the protocol, conduct of the review, and reporting followed the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) 2020 checklist and guidelines (75). The review was registered in February 2022 via OSF.<sup>7</sup>

### 4.2. Research Questions

The review sought to answer the following research question: *What business models have firms used to reach lower-income consumers in LMICs with food products?* Table 1 presents the Population, Concept, and Context model to determine the eligibility of this proposed review (77). Of note, while the search process examined 'business models', in practice only certain aspects of any given business model are likely to be central to a firm's reach to lower-income consumers - for example, how a firm distributes its products is likely to be more relevant than whether it outsources its internal IT functions. **As such, the analysis focuses on specific 'business model features' geared to reaching lower-income consumers, as opposed to full business models.**

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<sup>7</sup> [osf.io/wf38t](https://osf.io/wf38t)

**Table 1. Population, Concept, and Context for the Review**

<b>Population</b>	<p><b>Firms</b> includes all for-profit providers of food, including sole proprietors (whether formalised or not), small firms, mid-sized firms, and large companies, foreign and domestic. These can be at any stage in the value chain, so far as their actions can be linked to cheaper foods for end consumers. Social enterprises that can cover all their costs but do not intend to turn a profit are also included. Any enterprise dependent on donations or government grants for its operations is excluded, as are Corporate Social Responsibility initiatives that are done at a loss (78).</p> <p><b>Lower-income consumers</b> - 'Consumers' includes individuals and households that consume food. 'Lower income' is defined relative within the context, not absolute; no specific threshold is used, as definitions are known to be very heterogeneous across sources and rarely clearly and concretely specified (37). This includes firms that specifically seek to reach lower-income consumers, disproportionately reach lower-income consumers, or reach them in equal shares to other income groups but with a relatively expensive product that would normally be expected to be consumed <i>less</i> by lower-income consumers. Anything reaching rural/ remote populations, disadvantaged minority groups, refugees or internally displaced persons is assumed to be reaching low-income consumers until shown otherwise.</p>
<b>Concept</b>	<p><b>Foods</b> includes all food and beverage products, including raw commodities, processed foods and, ready-to-eat foods.</p> <p><b>Business model</b> refers to how an organisation creates, delivers, and captures value. 'A business model is a ... description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams' (79). The key features of relevance for this work are its value proposition; target customers; distribution channels; cost structure; and revenue model (Less relevant but also considered: customer relationship, value configuration, capabilities, partnerships). As noted above, the analysis considers key features directly relevant to reaching lower-income consumers, as opposed to the entire model.</p> <p><b>Reaching</b> entails a consumer purchasing the good, as opposed to receiving it as a donation or similar. This implies that the business has addressed some of the barriers to lower-income consumers purchasing - e.g., affordable pricing, convenience to match time constraints, distribution to remote areas. Consumers must be reached as the <i>end consumer</i> of a food, as opposed to as a supplier or intermediary.</p>
<b>Context</b>	LMICs, following the 2022 World Bank definition <sup>8</sup>

### 4.3. Identifying relevant studies

The review was broad in the type of sources included and encompassed studies utilising qualitative methods, quantitative methods, mixed methods, and reviews published in peer-reviewed journals and reports of relevant international organisations, as well as the business plans, websites, and other documentation of food companies claiming to reach lower-income consumers.

The review was divided into **two components**:

- A. Review of academic literature and grey literature on food business models that are used to reach lower-income consumers, including existing evidence related to their success and which features of the business model are used to appeal to lower-income consumers with food products.
- B. Review of existing business models used by real-world food businesses, based on their websites, business plans, or other business documents.

#### 4.3.1. Methods for component A

Searches were carried out in two databases, PubMed and Scopus, covering various terms for 'business model' and 'lower income' and 'food' (see Table 2). For each search, at least one word from each of the three categories had to be included. Search results were limited to English language but were not limited

<sup>8</sup> <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>



by publication year. Searches were undertaken on 7 February 2022.<sup>9</sup> Full details of the search strategy are included in Appendix I.

**Table 2. Search terms**

<b>Business Model</b>	"business model" OR "firm model" OR "company model" OR "marketing" OR "distribution model" OR "business strategy"
<b>Lower income</b>	poor* OR "low income" OR "lower income" OR "base of pyramid" OR "bottom of pyramid" OR "impoverished" OR "lower class"
<b>Food</b>	food* OR snack OR meal OR drink OR beverage OR dairy OR vegetable OR fruit OR fish OR meat

Second, a targeted search was undertaken of the websites of: IFC, the World Bank, FAO, ILO, IFPRI, Technoserve, ANDE, GAIN, GRET, BoPInc, and Practical Action. During screening, two other relevant organisational websites emerged as relevant, based on the references initially consulted: the 2SCALE project and Harvard Kennedy School Corporate Social Responsibility Initiative. Both were subsequently searched for additional resources. Because each site was different in whether and how it allowed for searching, the approach varied by site; the details for each site are included in Appendix 1.

For the papers and reports identified as highly relevant (n = 45, listed in Appendix 2), their reference lists were reviewed, and papers citing them were identified (via Google Scholar). Where relevant sources were found through either of these secondary screening processes, they were passed through the same title and abstract screening process listed below.

#### 4.3.2. *Methods for component B*

To identify real-world food businesses, we: extracted any businesses mentioned in the studies reviewed for Component A, above; contacted 26 GAIN and SUN Business Network experts working with food businesses in LMICs for recommendations; reviewed programme reports and internal documents from GAIN and the SUN Business Network; and undertook four Google searches, as detailed in Appendix 1. Of note, this search did *not* seek to be exhaustive and capture all such companies, as such an exhaustive search would be very difficult, and it is likely that multiple companies use each successful business model feature. Rather, it sought to capture a sufficiently large and diverse set that all main business model features that aim for reaching lower-income consumers were covered at least once.

#### 4.3.3. *Criteria for including and excluding studies*

Studies were considered eligible for inclusion under Component A (the review of academic and grey literature) if they met **all the following inclusion criteria**:

- Focus on the relevant PCC as defined in Table 1 (i.e., relating to an approach/approaches used by, or able to be used by, a business / private-sector entity; purported to reach lower-income consumers; with food or beverage products; in a low- and middle-income country/countries)
  - This could include specific examples of firms or analysis/discussion of general models/strategies (theoretical or based on real-world application)
- Published papers in scientific national and international journals, reports of select high-quality institutions (e.g., United Nations organisations)
- Studies published in English
- All types of study designs, including reviews

<sup>9</sup> Search alerts for additional resources meeting those criteria were set up at that time and monitored for about two months, but no additional relevant titles were identified.

Studies were excluded if there was no full text available; no additional follow-up was conducted with authors to obtain full-text versions. There were no restrictions on study dates, but in practice included studies were biased towards those published in around 2000 and after, as only online databases were searched and only those sources with versions available online included. As the focus on reaching lower-income consumers among private-sector firms only began in earnest in the early 2000s, this is not considered to be a limitation.

Firms were considered eligible for inclusion under Component B (the review of firms) if they met **all the inclusion criteria**:

- Focus on the relevant PCC as defined in Table 1
- Claim to be able to, or provide data to show they can, reach lower-income consumers.
  - No specific data on this were required as an inclusion criterion, given how rarely such data are publicly available.

Firms were excluded from Component B if they did not have sufficient information available to determine their business model and how it was purportedly able to reach lower-income consumers.

#### **4.4. Study selection**

For Component A, literature search results from the above-mentioned databases were imported into the Covidence online systematic review platform, and duplicates were removed. Studies were assessed against the eligibility criteria, and only those meeting the criteria were included in the review. First, the title was reviewed for relevance versus inclusion/exclusion criteria. For all relevant titles, the abstract was then reviewed for relevance versus the inclusion/exclusion criteria. For papers passing the abstract screening, a full-text review was conducted. For papers passing the full-text review, data extraction proceeded as described in Section 3.4. The number of excluded studies, with reason, was recorded at each stage and is reported in the Results section via a PRISMA flow diagram (Figure 1). Title and abstract screening were undertaken by two researchers, working independently. At this stage, we followed a 'one reviewer to include, two reviewers to exclude' approach. Full-text screening and data extraction were done by one researcher, due to limited resources and the non-sensitive nature of the study topic.

For Component B, all firms referred by contacts or identified in reports, papers, or online searches were added to an Excel database. Their eligibility vis-à-vis the study inclusion and exclusion criteria was then assessed. The results include the number of firms identified, the number of those which met eligibility criteria (and reasons for exclusion), and the total number of firms upon which the review draws for each business model feature discussed.

#### **4.5. Data extraction, charting, and quality appraisal**

A standardised form in Microsoft Excel was used to extract data from the included studies during the full-text review. Data extraction was carried out by one researcher. Due to the breadth of the research topic and the diversity of the types of sources consulted, no quality appraisal was conducted.

#### **4.6. Data synthesis: Collating, summarising, and reporting findings**

The data collected using the data extraction template were analysed via a narrative synthesis. This had the main goal of extracting the key features of business models that enable them (at least according to company claims) to reach lower-income consumers with food products. Given the non-quantitative nature of the research question and significant expected heterogeneity across the studies (e.g., due to differences in study design or indicators), a narrative synthesis was used to summarise and compare findings.

#### 4.7. Review of Non-Food Food-like Products

While the main focus of the systematic review was on food products, in order to capture any business model features that had been used on products that were not foods but were similar in key ways (i.e., consumable, relatively cheap, widely used, purchased regularly), a second set of searches of grey and scientific literature was conducted. The methodology used for this was very similar to that used in the food-specific search, with some exceptions as detailed in Appendix 3. The results of this review are not reported separately in the text but are mentioned where they add value to the food-specific discussion. Where results come from a paper or report focused on one of these 'non-food food-like products', this is noted with an asterisk next to the in-text citation.

### 5. RESULTS: SOURCES IDENTIFIED AND EXTENT OF EVIDENCE

#### 5.1. Papers, reports, and firms identified

##### *Component A*

For the scientific literature screening, after duplicates were removed, 1,992 papers were identified. 210 of these passed the title-screening stage.<sup>10</sup> Of these 210, 44 passed the abstract-screening stage.<sup>11</sup> Of the 44 full-text papers screened, 12 were deemed eligible for inclusion in the review. Reasons for exclusion at the abstract stage were no focus on business approaches (118 exclusions); no focus on reaching low-income consumers (25); no focus on an LMIC (17); not having an abstract or full-text available (2); and no focus on food (1). Reasons for exclusion at the full-text stage were no focus on business approaches or not discussing any specific business models (18 exclusions); no focus on reaching lower-income consumers (5 exclusions); not focusing on LMICs (5 exclusions); and being just a review protocol, without any results available (1 exclusion).

For the screening of sources from organisational websites, approximately 5,100 titles were screened. One hundred and eight passed the title-screening stage; of those, 56 passed the abstract-screening stage. Of the 56 full-text documents screened, 30 were found eligible to include. Reasons for exclusion at the abstract stage were no focus on business approaches (28 exclusions); no focus on reaching lower-income consumers (20 exclusions); and no focus on food (4 exclusions). Reasons for exclusion at the full-text stage were no focus on reaching lower-income consumers (6 exclusions); no focus on business approaches (3 exclusions); duplicating another source (2 exclusions); and no full-text being available (1 exclusion).

An additional 29 titles<sup>12</sup>, including 4 unpublished documents, were referred by experts contacted as part of the research; 19 of these were deemed eligible for inclusion. Of the 10 excluded, 9 had no focus on specific business approaches and 3 had no focus on lower-income consumers.

For the papers and reports that were deemed to be the most relevant after full text screening (n= 40), we reviewed the reference lists for relevant titles (a total 1,106 titles, not excluding duplicates, of which 20 passed the title screening stage) and used Google Scholar to identify other papers citing that paper/report as of July 1, 2022 (yielding 433 hits, not excluding duplicates, of which 20 passed the title screening). Out of these 40 titles, 17 passed the abstract screening; reasons for exclusion were not discussing any specific business models (13), no focus on lower-income consumers (5), not being about food (2), duplication of content in already included papers/reports (2), and no abstract or full text being available (1). Of those 17 full-text reports/papers screened, 11 were deemed eligible for inclusion; reasons for exclusion were duplication of content in already-included papers/reports (2), not being about food (2), not mentioning

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<sup>10</sup> Of these, 80 received two 'yes' votes (one from each reviewer) and 130 received one yes and one no vote.

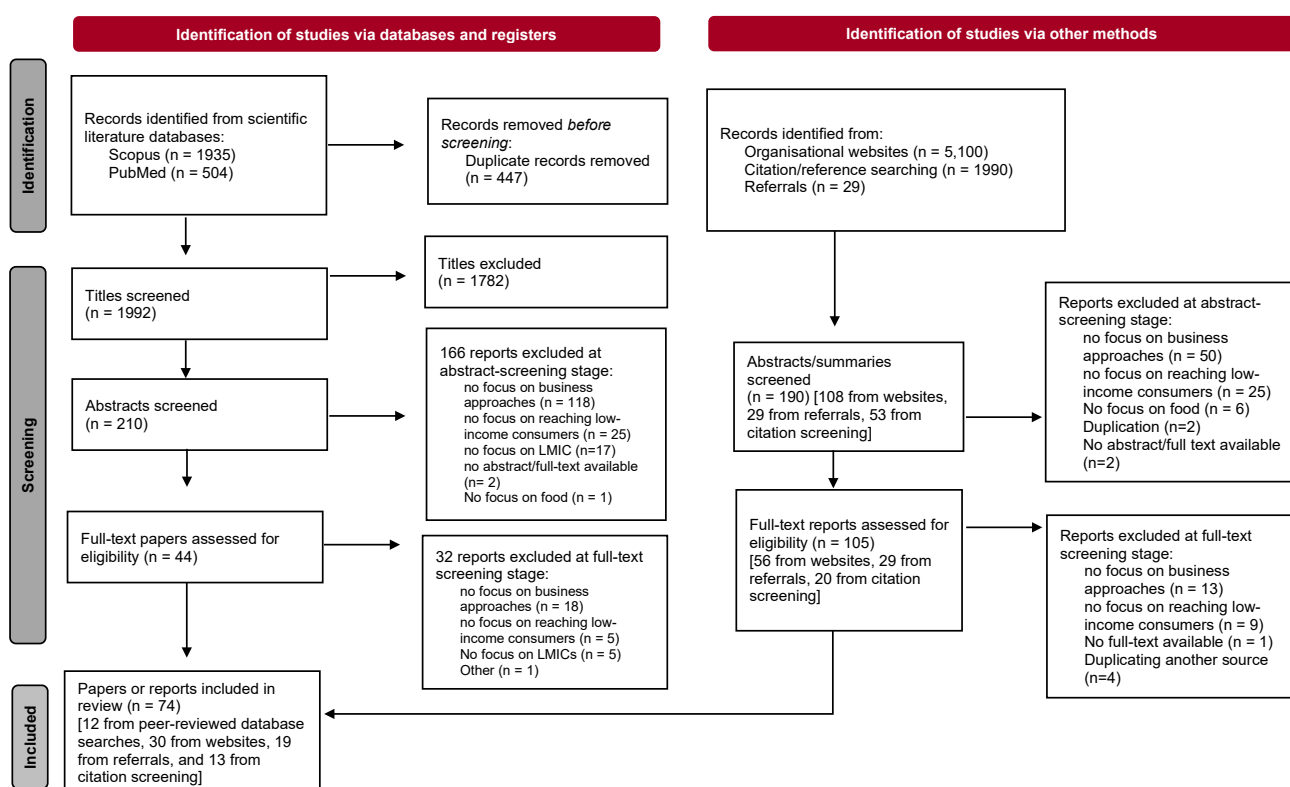
<sup>11</sup> Of these, 31 received two 'yes' votes (one from each reviewer) and 13 received one yes and one no vote.

<sup>12</sup> Over half of these were also identified in the subsequent review of reference lists of papers/reports identified through the search.

specific business models (1), and no full-text available (1). From those 11 papers, five were identified as being relevant for a second round of review of reference lists and papers citing.

Of those titles identified through the review of relevant sources' reference lists and papers citing them (261 from the papers citing and 190 from the reference lists, with some duplication), 13 were found to pass the title screening (12 from the papers citing and 1 from the reference lists). Of these 13 titles, three passed the abstract screening; reasons for exclusion were not discussing specific business models (12) and no full-text version available (1). Of the three full-text reports/papers screened, two were deemed eligible for inclusion; the third was excluded due to not discussing specific business models.

**The total number of items reviewed was thus: 8,445 titles (not excluding duplicates across the different ways of identifying sources), 400 abstracts, and 149 full texts, with 74 items deemed eligible for inclusion in the review.** This is summarised in Figure 1.



**Figure 1. PRISMA Flow Diagram for the Identification of Studies, adapted from (75).**

Forty-four of the included sources were case studies of specific firms. Most of these focused in East or Southern Africa or South Asia, with four including examples from Latin America, two from North Africa, one from Oceania, and one from Southeast Asia. Nearly all had been published in 2010 or later. The most commonly covered foods were fortified infant porridge and similar complementary foods; dairy products and other fortified foods were also commonly studied. These case studies were generally based on key-informant interviews with those involved with the business as well as document review; about one-quarter also included data from consumers, and some did not clearly specify the source of their data. The remaining 30 sources were more conceptual or looked across numerous examples. Most had nonspecific geographical and food focuses; those with a focus on a specific food type also generally focused on fortified or complementary foods. For further reading, Box 1 features several prior papers and reports specifically on the topic of reaching lower-income consumers with nutritious foods.

### **Box 1: Prior work specifically on business models for nutritious foods and lower-income consumers**

**Chevrollier et al. (2012) *Access to Food and Improved Nutrition at the Base of the Pyramid*. BoP Innovation Center report.** Reviews a set of agriculture and food businesses to identify five business approaches that could improve nutrition among lower-income consumers; while three of these operate through smallholder farmers or intermediaries as consumers and producers of goods and services, the latter two focus on reaching lower-income consumers with nutritious foods.

**Danse et al. (2020), "Unravelling inclusive business models for achieving food and nutrition security in BOP markets." *Global Food Security*.** From the same research group as Chevrollier et al. (2012), builds on that work to examine 16 case studies of inclusive businesses within the food sector. Only half of these are consumer- (as opposed to producer-) facing, and several of them rely on non-market distribution systems.

**Henson S, Agnew J. (2021). "Are market-based solutions a viable strategy for addressing micronutrient deficiency? Lessons from case studies in sub-Saharan Africa and South Asia." *Development Policy Review* 39.** Case studies of three different firms with innovative business models for reaching lower-income consumers with nutritious foods.

**Hoddinott J, Gillespie S, Yosef S. (2015) *Public-private partnerships and the reduction of undernutrition in developing countries*. Discussion Paper 1487. Washington, DC: IFPRI.** Considers PPPs and thus includes examples that are not necessarily commercially viable, but also includes several useful examples of products/initiatives that were intended to be so.

**IBAN. (2016). *A Guide to Inclusive Business in the Fast-Moving Consumer Goods Sector*. Bonn: Inclusive Business Action Network (IBAN).** Though not considering food alone, this report includes many examples from food companies, including on reaching lower-income consumers.

**Kayser et al. (2014). *Marketing Nutrition for the Base of the Pyramid*. Hystra Consulting Report for GAIN.** This report specifically examines case studies of marketing nutritious complementary foods, featuring several relevant examples of firms.

**Lalani et al. (2019) "Which Choice of Delivery Model(s) Works Best to Deliver Fortified Foods?" *Nutrients*.** Examines business models for food fortification, but the discussion is mostly focused on public-sector models, which the authors deem necessary for building consumer trust and confidence in fortified foods.

**PATH et al. (2019) *Where Business and Nutrition Meet: Review of approaches and evidence on private sector engagement in nutrition*. MQSUN+ Report.** Reviews general approaches through which the private sector can improve nutrition, including several relevant examples related to increasing access to nutritious foods among lower-income consumers.

**Value Chains for Nutrition in South Asia: Who Delivers, How, and to Whom? *IDS bulletin*, Volume 49, 2018.** This issue of the *IDS Bulletin* includes several relevant examples of companies aiming to engage with lower-income consumers on nutritious food products.

This lack of literature is not surprising, as a 2014 systematic review found that only about 5-10% of research on BoP marketing examined food, with most instead focusing on information and communication technologies (37). Considering specific firms and models, a small handful of examples (e.g., Grameen-Danone in India; Nutri'zaza in Madagascar) received repeated coverage across numerous sources, accounting for the bulk of the evidence; a similar phenomenon has been found for reviews of the BoP marketing literature more broadly (37).<sup>13</sup>

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<sup>13</sup> Throughout the report, we refer to firms by their names *unless* the information on that firm comes from a non-public source, in which an anonymised description is used instead.

## Component B

For Component B, from across all sources, a total of 394 firms<sup>14</sup> were named as potentially being relevant; approximately 40% of these were identified from the documents reviewed under Component A, 50% from referrals from experts and documents not covered under Component A, and 10% from internet searches.<sup>15</sup> Of these 394 firms, 295 were determined to not be eligible for inclusion; the main reasons for exclusion were that the company focused primarily on reaching smallholder farmers as suppliers or employing lower-income workers, not reaching lower-income consumers; a lack of a clear strategy for reaching lower-income consumers; not being commercially viable (e.g., being an NGO or relying on government support); the firm having closed; the product/strategy not yet being launched; and insufficient information. Of note, several firms were seen as borderline for inclusion, as the initiative in question had begun with NGO or government support and was not yet run as a private-sector, profitable or break-even entity; in cases where it was clear that the intent was for the initiative/product to become self-sustaining, it was included. If not, it was excluded. In addition, several firms were excluded because while their product reached lower-income consumers, this was not through commercial channels but rather through institutional channels like school meals, humanitarian relief, and government programmes.

The remaining 99 examples came from a range of countries across Africa, Asia, and Latin America, but were primarily concentrated in East and Southern Africa and South Asia, particularly Kenya, Mozambique, and India. They included both large multinational companies and local small- and medium-sized enterprises (SMEs), and covered all types of products, including dairy, eggs, bread, flours, oil, drinks, fruit, vegetables, and meat. The 99 examples were consolidated into 13 different business model strategies, with strategies having on average 11 examples each.

### 5.2. Quality of evidence on profitably reaching lower-income consumers

From the papers and reports reviewed, only 14 firms were identified to have any evidence of reaching lower-income consumers (though some had multiple studies reporting on them), and only ten of these (plus one other) had any evidence of profitability. The quality of evidence was assessed using the standards summarised in Appendix 4, and the results are presented in Table 3. It is important to note that evidence quality was assessed separately from what the evidence showed – e.g., one could have a study that had high quality but showed poor reach to lower-income consumers.

For about half of the firms studied, the evidence on their reach to lower-income consumers was considered of inadequate quality (usually, showing the population share or numbers reached in an LMIC context, but without any actual data on the poverty rates of consumers). For the remainder, several showed the share of the population reached within a poor area, but only four had actual data on the income/poverty of the consumers. No evidence met the quality threshold for being ‘probable’ or ‘plausible’ in terms of connecting the specific business model feature to the reach among low-income consumers; instead, the best-quality evidence suggests *reach* to low-income consumers, with the possibility that the business model feature in question is responsible. Considering the adequate-quality evidence, only one firm had evidence of a high share of the population reached among a poor population.

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<sup>14</sup> Firms could be included more than once if referring to different business models used for different products and/or in different geographies.

<sup>15</sup> Specifically, the Google searches returned 1,226 hits (including some overlap between searches), of which 152 webpages were skimmed and 26 were read in full.

**Table 3. Evidence summary**

Firm/ Initiative Name	Country	Product	Evidence Quality - Reaching lower- income consumers	Reach evidence shows...	Evidence Quality - Profitability	Profitability evidence shows...	Business Model Feature(s)	Source(s)
Grameen Danone	Bangladesh	Fortified dairy	Adequate	Moderate share reached, in area with high poverty rate	Moderate	Not clearly profitable	1, 6, 7, 11	(80-82)
Nutrifaso	Burkina Faso	Infant porridge	Adequate	Moderate share reached, in area with high poverty rate	Moderate -	Partial profitability (was receiving NGO support during time evaluated)	2, 11	(58,83)
Nutrizaza	Madagascar	Infant porridge	Adequate +	High share reached, among poor population	Projected -	Not clearly profitable, but projected to be so (was receiving NGO support during part of the time evaluated)	2, 7, 10, 11	(58,63,83- 85)
FanMilk	West Africa	Fortified dairy	Inadequate	Large share reached, unclear poverty rate	None	NA	11	(63)
KokoPlus	Ghana	Infant porridge	Adequate+	(For more market-oriented model) Low-moderate reach among poor population	Moderate -	Not profitable (was receiving NGO support during time evaluated)	6, 7, 11	(86)
Danone Dairy	Indonesia	Fortified dairy	Inadequate	Large numbers reached; unclear poverty rates	Moderate	Profitable	1	(58)
Pioneer fish	Kenya	Fish	Adequate	Unclear reach, moderate poverty rate among consumers	Moderate	Profitable (due to other product lines)	1, 5	(87)
Protein Kissèe- La	Cote d'Ivoire	Infant porridge	Adequate +	Low share reached, unclear poverty rate	Moderate	Profitable (due to other product lines)	1	(58,88)
ePap	South Africa; other African countries	Porridge	Inadequate	Large numbers reached, low proportion; unclear poverty rates	Moderate -	Partial profitability (was receiving NGO support during time evaluated)	1, 7	(58)
Maggi (Nestle)	PNG	Instant noodles	None	NA	Moderate	Profitable	7, 10, 11	(24)
Amulspray	India	Milk substitute	Inadequate	Large share reached, unclear poverty rate	None	NA	6, 7	(89)
[Anonymised]	Kenya	Chicken pieces	Adequate	Unclear share reached, moderate poverty rate	High -	Profitable (was receiving NGO support during time evaluated)	8	(90)
Tarakwo Dairy	Kenya	Milk	Adequate	Unclear share reached, moderate poverty rate	High -	Profitable (was receiving NGO support during time evaluated)	8	(91)
GUTS AgroIndustries	Ethiopia	Infant porridge	Inadequate	Moderate numbers reached (during pilot) in poor areas	None -	(was receiving NGO support during time evaluated)	11	(92)
Unilever Shakti	Nigeria	Assorted industrially packaged foods, including fortified ones	Inadequate	Moderate numbers reached (during pilot) in poor areas	None -	(was receiving NGO support during time evaluated)	11	(92)

<sup>16</sup> Numbered as in Table 4.

Turning to profitability, of the eleven firms with some evidence of this, two were of high quality and one was projected, with the rest of moderate quality; however, many of these showed that the firm or model was not clearly profitable or was profitable but was receiving NGO support at the time. No firm had convincing evidence of both profitability and strong reach among lower-income consumers. **There is thus a considerable deficit of high-quality evidence on the ability of the business model features discussed here to actually reach lower-income consumers.**

The next section considers general characteristics of business models for reaching lower-income consumers, as found in the review; Section 6 then discusses the specific business model features identified.

## **6. RESULTS: GENERAL CHARACTERISTICS OF BUSINESS MODELS FOR REACHING LOWER-INCOME CONSUMERS**

For businesses to improve consumption of nutritious foods among lower-income consumers, there must be incentives for value chain actors to produce, process, and distribute the food in a way that reaches target consumers – and makes them able and willing to choose it (93). Business models need to put in place these incentives (i.e., by a firm providing adequate prices to its suppliers and any intermediaries while retaining sufficient profits for itself) while keeping the consumer price low enough – or the perceived value high enough – to ensure consumer ability and willingness to purchase. Importantly, perceived value and price are not the same thing: customers' decisions are influenced not only by price but also by how much they value that product's attributes (and their confidence that it will actually deliver them) (60).

In trying to achieve affordability, firms selling to lower-income consumers in LMICs face distinct challenges. On the demand side, lower-income LMIC consumers have certain specific needs (see Section 2). On the supply side, LMIC markets are often characterised by a large number of small producers (94,95), as well as a relatively large (unconcentrated) number of intermediaries (96,97); coordinating with these actors raises transactions costs. In addition, poor and variable-quality inputs and lack of access to adequate infrastructure (e.g., reliable electricity) in LMICs can raise processing costs or levels of loss, impacting consumer prices (96,98).

The general aspects of business models that have been identified as essential focuses for successfully reaching lower-income consumers are: product development, branding and marketing, and distribution and retail (45). In addition, several authors have summarised the 'Four A's' of BoP marketing: accessibility, affordability, awareness, and acceptability or appropriateness (99). Accessibility relates primarily to distribution and retail, acceptability to product design, and awareness to marketing and branding; affordability is a cross-cutting property emerging from product design, but also influenced by distribution channels and by marketing and branding. Successful approaches to reaching lower-income consumers usually require a combination of different strategies across the 'four A's', founded on a solid understanding of the customers and their needs (100).

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### **'Four A's' of BoP Marketing**

**Accessibility** – product is sold where consumers can easily get it (including in rural and low-income urban areas)

**Acceptability** – product is accepted by the consumer (given their needs and preferences)

**Affordability** – product is sold at a price point that aligns to the consumers' purchasing power

**Awareness** – consumers are aware of the product and its benefits

Source: (51,63).

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## **6.1. Product**

Companies entering the lower-income consumer market may choose to adapt existing products to meet lower-income consumers' needs, use similar products but sold in new ways, or create new products altogether (22,26,101). In doing this, they need to ensure acceptability—i.e., alignment of the product with consumer needs and preferences. This can be difficult, as there is often little information available on lower-income consumers' behaviour and preferences (26), but is essential. For example, one Nigerian entrepreneur launched hoping to make jam using local wasted fruit, with a high fruit content; she soon realised that the local lower-income market rarely used jam, and when they did, not care if it was made with real fruit and thus had to radically change the approach (102).

It is also essential for product design to contribute to affordability—through reducing cost, increasing value, or matching lower-income customers' variable cash flows. Costs can include not only monetary costs but also time and effort costs of acquiring, preparing, and consuming foods. To reduce costs, companies can use ingredients or materials that perform adequately at reduced cost and eliminate aspects of the product that do not add value for the consumer (45). While the early BoP marketing literature focused on the need to provide high-quality products to the poor as central, future critiques and real-world interpretations have argued that lowering quality (while retaining a safe, functional product) can be empowering for the poor, as it provides them with a product that better meets their preferences and is more affordable to them (30) (34,62)\*. However, cost reduction can only go so far: willingness to pay is foundational for a successful business model (103). To increase value for money, companies can include value-adding features (such as convenient preparation) and offer high quality, including with certifications where relevant, to lower the perceived risk (though this is likely more relevant for higher-cost products associated with a greater purchase risk, as opposed to food) (45). Perceived value can also be increased through branding and marketing, as discussed below. To match customers' variable cash flows, firms can offer products in affordable sizes or facilitate access to credit or subscriptions, as relevant (45).

## **6.2. Branding and Marketing**

Branding is often an essential aspect of successfully selling products to lower-income (or any) consumers (104), needed to ensure awareness and to increase perceived value (and therefore affordability). Appealing packaging and branding appeal to lower-income consumers just as they do to high-income consumers; they should be distinct, appealing, and express the values of the product or company, communicating the value of the product (100,104). Brand recognition is also important for differentiation from competitors and ensuring firms reap the benefits of their marketing (100). In creating perceived value through branding, non-monetary gains (e.g., pleasure, convenience) can be just as important as monetary ones (46). Given aspirational consumption (see Section 2), focusing on products as being 'cheap' or 'good value' may not be the best way to motivate lower-income consumers. Instead, marketing focused on quality, value, or alignment with social aspirations may be more successful. Aspirational marketing is widely used in business models that aim to reach lower-income consumers, particularly those focusing on foods for children (46,58,98).

When promoting the product or brand, lower-income consumer markets are often 'high touch' - i.e., they need to be engaged through active cultivation and marketing (103). This can be particularly challenging as lower-income consumers may not be as easily reached through conventional channels like television and radio and may instead require approaches like door-to-door sales or local sales agents (104). It can also require time and patience - to build sustainable sales, introduce potential customers to products, follow up to ensure those customers become satisfied repeat purchasers, and support word-of-mouth to bring in additional customers (46).

### 6.3. Distribution and Retail

Accessibility depends on distribution to the areas where low-income consumers live: this includes low-income urban areas as well as rural areas; particularly in Asia, most lower-income consumers live in rural areas (26,27).<sup>17</sup> Distribution costs in these areas are very high, beyond the means of many smaller businesses (22,78,96); for example, a study of seven fortified complementary foods targeted to lower-income consumers found that distribution and marketing costs accounted for 50-70% of the product price (58). This is exacerbated for perishable products requiring refrigeration or careful handling (60)—for example, maintaining the cold chain was one of the largest costs for the original Grameen Danone yoghurt product (discussed below) and threatened the viability of its geographic expansion (60). High costs are driven by poor quality of roads and other infrastructure; crime in certain urban areas (48); and, in rural areas, by remoteness and low population density (27,45,99). As lower-income consumers often buy small volumes, distributing to the areas where they live may not be attractive for distributors (96). In urban areas, consumers may not be willing to travel far to access goods, making proximity particularly essential (63).

These challenges make the development of distribution strategies that can reach rural and low-income urban areas essential (27,45,99). Indeed, weaknesses in distribution are among the most common reasons why businesses aiming to serve lower-income consumers fail (34). Across all distribution models, technology can be used to make processes more efficient, lowering costs and minimising losses (45).

### 6.4. Scaling

Business models for reaching lower-income consumers with fast-moving consumable goods such as food often depend on low margins per unit but high volumes; these volumes are often seen as necessary for covering fixed costs and turning a profit (22,101). This makes it important to scale the model to reach a larger number of consumers. Many efforts to reach lower-income consumers, however, have failed to scale (35,60). Some have argued that, for smaller enterprises and with an interest in development impacts, scale should focus less on the reach of individual companies and more on the replicability of business models across firms, and their collective impact (60). At the level of the individual firm, however, there are three types of scaling to consider: scaling up, scaling wide, scaling deep, and scaling across.<sup>18</sup>

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<sup>17</sup> Within Africa, the urban lower-income consumer market remains relatively large (albeit smaller than the rural one) (27).

<sup>18</sup> The terminology and definitions for types of scaling vary somewhat across organisations. Some also include a version of 'scaling deep' that includes selling more of the same product to the same customers, or doing so more efficiently (105).

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## Different Types of Scaling

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**Scaling up** - selling existing product to more consumers within current market

**Scaling wide** - selling existing (or very similar) product to new types of consumers, in new geographic areas, or through new channels

**Scaling deep** - offering new products to existing consumers

**Scaling across** - offering new products to new consumers

Source: Adapted from (48).

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To *scale up* reach among lower-income consumers, five strategies have been suggested: Leveraging trusted networks (e.g., health centres, savings groups); offering low-risk trials to incentivise an initial purchase from a low-income customer; investing in networks of sales agents, incentivising the top-performers through performance incentives; leveraging trust between community members by incentivising referrals; and creating (digital) loyalty programmes to (cheaply) encourage repeat purchases (106). Standardising the product and/or operations can also enable more rapid scaling (45).

*Scaling wide* entails reaching beyond just the lower-income consumer market with the same or a very similar product. It is difficult to succeed when starting with just one low-margin product aimed at lower-income consumers, but a larger customer group can help create a more profitable, sustainable business model (58,78,103). Many companies aiming at lower-income markets thus also serve higher-income or institutional markets; this can be particularly important for products with a

smaller market base to begin with, such as complementary foods (107). As noted in a FAO/WHO report, 'economic success is more likely to occur if the nutritious products are being purchased and consumed by the entire economic spectrum of the country through...multi-tiered routes' (108). Under this 'whole pyramid' approach, the poor are segments of a much larger market (109). Some companies work to first target middle-income consumers, to establish a market, expecting that in the long-term, economies of scale and experience will reduce costs, bringing the product within reach of poorer consumers or allowing for cross-subsidisation (see Section 6) (78). The brand awareness that has been built among middle-income consumers may also translate into greater demand among lower-income consumers, particularly via social aspirations. However, an existing firm targeting the middle- or upper-class can damage its brands or erode the sales of those existing products by introducing low-cost varieties (101). There can also be unexpected challenges when moving from one channel to another. For example, Dala Foods in Nigeria tried to scale up sales of a vitamin A-fortified cereal mix by extending from institutional channels (a USAID PEPFAR programme) to retail ones, but were unable to do so because they did not have the sustained demand, marketing, and distribution channels that were needed to drive large-scale production, and high sales volume were needed to make production viable—as well as due to regulatory and copyright issues rising from the product initially being distributed through the institutional channel (96,110). Moreover, an exclusive focus on the poor can bring certain advantages, encouraging innovative and tailored products and processes (109).

Thirdly, firms that have a strong market of existing lower-income consumers can try to *scale deep* by offering new products to those existing consumers; this is a particularly useful strategy when using distribution channels that have a high fixed cost per customer reached, such as a network of company-specific sales agents. In general, having a broader portfolio of products makes it more likely a business will be successful. Finally, the broadest type of scaling is offering new products to new consumers, either within the same or in a similar industry—i.e., *scaling across* (105). While multiple scaling approaches can be pursued in parallel, this entails certain challenges and risks (105).

### 6.5. Specific challenges with nutritious foods

Marketing nutritious foods, specifically, to lower-income consumers poses various challenges for businesses (60,93,111,112). Many of these are on the demand side. Low-income consumer demand for

nutrient-dense foods is often seen as being low (78,96,113,114).<sup>19</sup> Some studies have found that lower-income consumers may be willing to pay more for certain nutritious foods if provided with information on their benefits (80), though for some products this premium has been found to be insufficient to cover the costs of production (116). However, investing in awareness-raising about nutritious foods and their benefits and trying to shift social norms and preferences for healthy eating are rarely profitable activities for any individual company (as the benefits would accrue to not only them but also any rivals producing nutritious foods) (78,96,113). While companies can (must) invest in marketing and promotion of their own products, demand creation takes time and money, which may increase prices (60,117), and many company leaders feel this is insufficient when demand hinges on consumers valuing nutrition to start with (78,101).

In addition, the nutritional value of foods and the impact of consuming them are largely invisible (i.e., the 'nutritional' aspect of the food is a credence good), making it difficult to capture value and running the risk of false labelling and 'lemons markets' (118), with rivals undercutting nutritious products with cheaper, less-nutritious alternatives (36,96,112,113). This is exacerbated by contexts with limited capacity for enforcement of truth in labelling/advertising laws (93). For example, in Nigeria one local fortified foods company claimed it lost 50% of its market share to companies producing counterfeit products with unjustified nutrition claims before the government was able to intervene (119).

Companies launching a new nutritious food face particularly formidable challenges due to lower-income consumers' aversion to risk and to trying new products (45) and the difficulty of getting consumers to see value in new nutritious product attributes (like fortification) (60,96). From a nutrition perspective, certain population groups are particularly important to target (e.g., young children); however, such targeting is often infeasible for a business and can result in too narrow of a market to be economically viable (112). Some have even found nutrition to be an unattractive selling point: the Indian company Britannia Biscuits had an apparently viable business strategy for reaching a large number of consumers with a fortified biscuit but later decided to abandon the nutrition focus, as they felt they had lost market share by focusing too much on health (120).

As a result of low demand and invisible benefits, many low-income consumers are not willing to pay more for nutritious foods, whereas many companies feel that nutritional quality comes at an added cost (78). This can leave companies with limited room to provide a nutritious product at a price consumers are willing to pay – and that is also profitable (78). Two main strategies for counteracting this credence problem are using higher price as a signal for quality or investing in extensive branding and advertising – both of which lead to higher prices (121). Working with a trusted partner (e.g., an NGO or the government) may help to increase trust in the nutritional quality of a product and willingness to pay for it, as may third-party certification (121).

On the supply side, the agri-food sector in general is challenged by thin profit margins, seasonality and interrupted supply, higher-than-average risk (e.g., due to weather), and ease of copying products (101,122-124). Perishable products must contend with poor infrastructure (e.g., missing cold chains, irregular electricity, damaged roads) that can increase rates of loss and spoilage, whereas it is important to ensure nutritional value of the product is maintained throughout the supply chain (112).

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<sup>19</sup> For example, coverage of fortified foods tends to be lower among lower-income consumers (115).

Nutritious foods also need to be consumed fairly regularly to obtain a significant benefit – unlike durable goods such as solar panels, which can be a one-off purchase – meaning that both supply and demand challenges need to be addressed in a continuous manner (63).

**Box 2: Why not just improve efficiency and productivity?**

In addition to the business model features discussed here, cheaper prices could be obtained through cutting costs in production, handling, and processing or reducing loss along the value chain. If these price-reductions were passed on to lower-income consumers, they could be seen as models that improve food affordability. The relationship between supply chain efficiency, costs, and prices, however, is not straightforward (125). Amid high transaction costs (common in LMICs), productivity improvements may not be effectively transmitted into lower consumer prices (126). The existence of intermediaries within food chains creates opportunities for arbitrage and the capture of price cuts, without benefits for consumers; for example, GAIN evaluations of SMEs aiming to reach low-income markets with nutritious foods found that in several cases cost reductions in production were absorbed by middlemen, not passed on to consumers, and that efficiency improvements thus did not always result in lower consumer prices (61,87). Products can be diverted to markets with higher willingness to pay and away from the poor. Imperfect information, high transaction costs, and imperfect competition (which characterise agricultural markets in LMICs) may dampen the transmission of price changes to consumers and producers alike (127). Hence, general business practices that cut production costs or reduce loss were not included here unless there was specific evidence that these were undertaken to reach lower-income consumers *and* passed on to those consumers – though that does not mean that they do not hold potential for increasing food affordability.

**7. RESULTS: SPECIFIC BUSINESS MODEL FEATURES FOR REACHING LOWER-INCOME CONSUMERS**

The thirteen business model features identified through the review are summarised in Table 4 and described in the next sub-sections. Box 2 (above) explains an alternative set of approaches to lowering prices and why they are not included in the review.

While none of these business model features are specific to only *nutritious* food products, some are better suited to certain types of foods, or pose challenges when it comes to nutrition and/or food safety. Where this is the case, it is stated. In addition, it should be noted that while the focus here is on formal, ‘modern’ firms, many of these approaches can be, and in some cases have long been, used by traditional food producers and retailers.

Of course, none of these features *alone* can ensure success with either reaching lower-income consumers or doing so in a financially viable way: each feature would need to be supported by the other aspects of a solid business model. For example, a firm adopting a particular packaging feature to help reach lower-income consumers would still need to have viable product that fit customers’ needs, to ensure it was accessible and affordable to them through appropriate distribution, to market it to increase awareness and desirability, and to have the internal systems (e.g., human resources and accounting) in place to support overall business operations in a cost-effective manner. In addition, many firms (about one third of those included in the review) use several of these business model features at once.

**Table 4. Identified Business Model Features**

	Theme	Feature	Explanation
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1	<b>Cost structure</b>	Cross-subsidisation	Selling one product with a larger margin enables selling another with a smaller one.
2	<b>Product</b>	Increase value through convenience	Increase convenience of the product (reducing time or cooking cost), thereby increasing value to the customer and their willingness to pay.
3		Use of waste products	Use products that would normally be waste as ingredients or inputs
4		Less-desired parts	Use parts of a product that are usually considered less desirable and can be sold more cheaply.
5		Quality segmentation	Grade product by quality, directing the lower-quality but still useable product to the lower-income market.
6		Cheaper ingredients	Substitute ingredients with cheaper alternatives or cut unneeded ingredients altogether.
7	<b>Packaging</b>	Small sizes	Use small package sizes, or break something normally sold as a whole item into its parts.
8		Sell in flexible quantities	Sell in flexible quantities, allowing customers to purchase only as much as they need (i.e., 'purchase and pay as you can').
9		No or reusable packaging	Eliminate or cut packaging costs by removing packaging or using reusable packaging (often paired with flexible quantity sales).
10	<b>Distribution &amp; Retail</b>	Distribution hubs	Set up a hub to centralise distribution and thus cut distribution costs.
11		Bespoke last-mile distribution network	Create a new last-mile distribution network to reach lower-income consumers, specific to a company or product.
12		Existing network with new support	Use existing retail networks that reach lower-income consumers, but give them new support with marketing or distribution.
13		Direct sales in underprivileged areas	Sell directly to consumers, locating in a low-income area.

### 7.1. Cost structure: Cross-subsidisation

Thirteen example firms in nine countries were found to be using cross-subsidisation models: approaches in which one product is sold with a larger margin, with the excess profit used to subsidise another product sold at a smaller margin (e.g., by covering all or most company fixed costs with the higher-margin channel). This approach was found to be used for diverse products including vegetables, fish, chicken, dairy, fortified oil, and flour products. For example, Protein Kissèe-La, a processor of fortified porridge flours in Côte d'Ivoire cross-subsidised its porridge by supplying maize grit to breweries (78); MMD Kheir Zaman, a food retailer in Egypt shared costs for transport and supply chain management with a high-end supermarket to subsidise low-income-consumer facing retail outlets (82); Mozambican and Kenyan fish farmers sold high-end tilapia filets and whole large fish with a large margin to more affluent urban markets and used the profits to subsidise smaller fish sold to lower-income consumers (87); a Nigerian cassava processor, Promise Point Limited, sold high-quality ingredients to multinational food processors and used the proceeds to subsidise a biofortified porridge flour for the local market; and Cargill India, the major multinational, introduced its fortified oil in India at a low cost by subsidising it through profits from other products in its portfolio (78).

This strategy can also be used with the same product sold in different forms or settings to different groups of consumers. For example, Coopérative de Transformation d'Approvisionnement et d'Écoulement de Soja (CTAE) in Benin targets two different customer segments with its soybean-based product: very-low-income consumers and lower-middle-income consumers; the latter group are reached by small shops in main cities, with larger better-quality packaging that includes more marketing (98). Neighbourhood Freshmart, a vegetable retailer in Kenya cross-subsidised sales to lower-income consumers through 'mama mboga' street vendors with sales to supermarkets. After an initial rural-poor-focused model proved unprofitable, Grameen-Danone in Bangladesh eventually decided to cross-subsidise its sales of fortified yoghurt to

poorer populations through sales to wealthier consumers at higher prices through urban retail channels, helping sustain affordability for the lower-income rural population (60,81). Danone used a similar approach in Indonesia, marketing a fortified milk-based beverage, Milkuat, in a premium range (a Tiger-shaped bottle) and using those margins to profitably make a basic version available at about half the price (and with a 15% smaller margin) (58). One Rwandan flour processor has a particularly interesting take on the cross-subsidisation approach, sourcing from smallholder farmers and agreeing to sell 15-20% of the production back to them at a discount, with the remainder going to institutional markets (e.g., schools, health centres) at a higher margin.

Similarly, a common strategy is selling to an institutional market (e.g., a school meal programme or NGO) at a higher margin or with the aim of covering most of the fixed costs, with the savings passed on to the normal retail market, as done for fortified complementary porridge producers in Madagascar and Burkina Faso Nutri'zaza and Nutrifaso (58). When leveraging institutional orders in this way, it is important to consider the use of alternative branding/packaging or focusing in areas where the product is not sold by retail, to avoid undermining the paid market (58).

Producing a lower-price product can result in negative effects on the higher-price product (e.g., if it comes to be associated with being poor), so some companies produce a new brand specifically for lower-income markets, even if the formulation of the product is not majorly changed. For example, in India, when GSK aimed to expand reach to lower-income consumers with its Horlicks drink, it released a more affordable version marketed specifically to them and branded 'Asha' (meaning hope) (125). The viability of cross-subsidisation strategies that segregate products across wealth groups can also be limited in cases where there are few affluent or middle-income consumers to balance out the large number of lower-income consumers.

**Evidence:** The quality of the evidence related to firms using cross-subsidisation is summarised in Table 3. In short, five of the 13 reviewed firms using this business model feature had some evidence of reaching lower-income consumers; for three firms, this was considered adequate quality, though neither showed moderate or high reach among a poor population. Five also had some evidence of profitability; three were shown to be profitable (including due to other product lines), while one was partially profitable and the other was not clearly profitable.

## **7.2. Product: Increased value through convenience**

The cost of time and fuel to prepare food is not insignificant in many LMICs. For example, an analysis of the cost of cooking beans in six African countries found that the cost of the fuel needed to cook beans was often over 50% of the cost of the dried beans themselves, depending on the type of fuel used (126). In addition, as many low-income people are time-poor (e.g., needing to work multiple jobs as well as care for the home), they often place a premium on convenience and saving time. As such, firms that can find innovative ways to make a product more convenient and faster to prepare can enhance the perceived value of the product – increasing its effective affordability for the consumer. As firms working at scale and with industrial-scale equipment and trained employees can often process food more efficiently than home cooks, this can create a surplus whereby the effective cost to the consumer (product cost, minus fuel costs and value of cooking time) can be kept low enough to be affordable while still ensuring a profit for the firm. Convenience can also work to attract customers to nutritious or new products that they previously considered too difficult or time-consuming to prepare (e.g., legumes).

There were 11 firms, all in Africa, found to be using this strategy. It was primarily used for legume-based products and porridge flours. For example, Smart Logistics Solutions in Kenya produces multiple bean-based convenience foods: pre-cooked dehydrated beans, bean flours, and bean-enhanced instant noodles; these can all be cooked in just a few minutes, with minimal fuel and water, creating a 'modern and

easy' product from one traditionally seen as laborious and time-consuming (78,127). Indeed, Maggi instant noodles were found to quickly penetrate the market in Papua New Guinea, even among low-income households, due to the ease of consumption compared to traditional staples (which are cheaper) (24). Another Kenyan firm, Kwanza Tukule, pre-cooks beans and delivers them directly to street vendors – mostly women, who sell mostly to low-income laborers – using an app. This provides considerable convenience for vendors by cutting costs for not only preparation but also purchasing; 63% of the firm's client vendors report purchasing due to this time savings (128). Using a more traditional approach, Banda Boraie Cooperative in Ghana transforms soybeans into ready-to-eat street food (grilled tofu kebabs, an innovation adopted elsewhere in West Africa) (104,129).

Several companies sell pre-cooked porridges (often fortified and directed at young children), which are either ready-to-eat/drink or require only a few minutes of preparation. For example, Nutri'Zaza (a Malagasy initiative initially started by the French NGO GRET and now an independent social enterprise), produces a fortified grain-and-legume infant flour, which is sold ready-to-eat in poor urban neighbourhoods, either at 'baby restaurants' or by door-to-door sales persons, as well as in dried form at stores (58,63,83-85). A serving costs less than 10 US cents (or 4-8% of the budget of a minimum-wage family), and 12.9 million meals were distributed in 2020 (84,85). The convenience of not needing to shop, cook, or fetch needed fuel and/or water was appreciated by local mothers and resulted in high levels of reach; 40% of caregivers report the main advantage of the product being the time-savings.

At the same time, it is by no means a given that a more convenient product will be affordable: the same analysis cited above found that purchasing canned beans in the six studied countries would cost roughly 3-4 times the cost of dry beans plus cooking fuel, and that choosing pre-cooked foods in general would roughly double the costs of a basic meal (126). To achieve affordability, the product must be reasonably cheap to prepare and package in convenient form for the firm, and that savings must be passed on to the consumer.

**Food safety considerations:** As foods with enhanced convenience are often partially or fully cooked before reaching the customer, and thus may not be cooked (or even heated) by them, it is essential to ensure the safe handling and packaging of the food to prevent contamination before it reaches the consumer, and to provide clear instructions on whether any products need additional cooking.

**Evidence:** Two firms using this business model had some evidence of reaching lower-income consumers; for both, this was considered of adequate quality, with one showing high reach among a poor population.<sup>20</sup> Two firms also had some evidence of profitability; one was partially profitable, while one was not clearly profitable but projected to be so. Beyond the evidence captured in the review, it is clear that many 'convenience foods' (often not very nutritious – e.g., soft drinks, fast food, street food) are profitably sold to low-income consumers every day, though many of these may not be nutritious and convenience may not be their key selling point.

### 7.3. Product: Use of waste products

Four firms, from Africa and Latin America, identified in the review had business models that involved repurposing waste materials. The amount of food that could be repurposed this way is large: it is estimated that 14% of all food produced globally is lost between harvest and retail, while 17% is wasted (130). For the most nutrient-dense foods, which tend to be highly perishable, the levels are even higher, exceeding 20% for the category of fruits and vegetables (130), and even higher in Africa (131). By taking food that would otherwise be wasted and repurposing it into something that can be consumed (or can be an input into something that can be consumed), firms may be able to create a more affordable product, given that the

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<sup>20</sup> In addition, one company (a Kenyan producer of porridge flour) had unpublished data showing that about 62% of its customers were low income, though their poverty level was lower than the overall population.



'waste' food ingredient is usually available cheaply or for free. This business model feature comes with the added benefit of reducing the environmental impact of the local food system.

Two of the reviewed companies (Reybanpac in Ecuador and Happy Cow in Kenya) used whey, a high-quality easily digestible protein leftover from processing milk into cheese, to create a fortified yoghurt. In both contexts, whey was previously disposed of as waste - in Ecuador, dumped into rivers at a rate of 800,000 litres a day - and thus could be acquired cheaply (or for free through the companies' own processing of cheese) (78,132). In Ecuador, the product in question was UHT processed (thus shelf-stable), low-sugar, and targeted to lower-income young children as a complementary food (78,132). In Kenya, the product could be sold for up to 40% cheaper than comparable yoghurts that do not use whey (78). Both are sold in small packages to increase affordability (78).

Limpho Productos Alimentares in Mozambique uses broken nuts that would not normally be sold to make nut butter, and is aiming to use a similar approach to create rice flour-based products from broken rice (127,133). Finally, Kwanza Tukule, the Kenyan company mentioned above that produces and delivers pre-cooked beans for street vendors, also has an interesting take on repurposing waste: they use food scraps from their vendor-clients to feed a biogas digester, which is used to cook the beans, resulting in lower energy costs as well as greener energy (128). Though no examples were found in the review, seed cakes (the residue left over from extracting oil from seeds) and crop residues are other examples of waste products with potential for use in nutritious foods.

**Evidence:** There was no clear evidence of either reaching the poor or of being profitable for any of the reviewed firms using this business model feature.

#### **7.4. Product: Less desired parts**

Eight firms used a business model that involved selling less-desirable parts of a product (i.e., offcuts) separately. This was done for products that would normally be sold as a whole (e.g., chicken) or for which only desirable parts would be sold and the other products diverted to waste or non-food uses. All of these firms were producers of animal-source foods in southern Africa. Of note, this is a business model feature that has likely long been a feature of the approach of traditional butchers and fishmongers, but these firms have integrated the process into a more 'modern' business model (e.g., with improved hygiene, packaging, and/or marketing).

For example, a tilapia farmer in Mozambique separates the fillet from the offal and carcass of the fish and sells the latter parts at a low price (cost plus 5%), while making most of their money from the high-end fillet. Multiple chicken farmers in Mozambique and Kenya do similarly, selling the chicken offal and other offcuts like skin, neck, and feet at a cheap price while selling the more desirable chicken meat (e.g., breasts, fillets, drumsticks) at market prices to wealthier consumers (60). One of the companies in Mozambique, for example, sells a package of chicken neck, liver, and legs for less than half the per-unit price of a whole chicken. A goat farmer in Mozambique, MozAgri, likewise sells the main goat meat to urban markets at market prices while selling the 'fifth quarter' (i.e., pieces of an animal carcass that are not used for meat production, like organs, hide, intestines, feet, the head, horns, hooves, bones, and/or fat) to the local rural population around the farm at affordable prices.

**Nutrition considerations:** This approach is desirable from a nutrition perspective in that it can make animal-source foods, which are highly nutritious but often prohibitively expensive, available at much cheaper prices than normally possible. For this approach to have a positive nutrition impact, however, the less-desired parts must not be significantly less nutritious than the more-desired one; with many animal-

source foods, this is easily achieved as the offcuts include organ meats that are highly nutrient dense as well as bones that contain ample calcium.<sup>21</sup>

**Evidence:** There was no clear evidence of either reaching the poor or of being profitable for any of the firms using this business model feature.

### 7.5. Product: Quality segmentation

Eight firms in the review were found to be using quality segmentation to reach lower-income consumers; these firms were in Africa and South Asia, and mostly involved with fresh produce and animal-source foods. Under quality segmentation, a product that exists in different forms of different qualities is graded by quality, with lower-quality versions sold at cheaper prices (possibly with cross-subsidisation from the high-quality version to further lower prices, as discussed above). In the absence of this approach, either the product would be produced in a way that there was less difference in quality, it would be sold undifferentiated, or the low-quality products would be diverted to other streams (e.g., waste, animal feed, or food processing with lower quality requirements). This approach can also be used for aspects of quality other than the product itself – for example, packaging the same product in a cheaper packaging format with limited branding for a low-income market and in ‘premium’ packaging, with branding, for a higher-income market, at different price points.

Three reviewed firms used this approach for eggs, selling eggs with less-than-perfect quality (cracked, discoloured, unclean, misshapen, or with soft shells) at a lower a price (often through informal retail or on-farm outlets). For example, one Rwandan firm provides some of its low-quality eggs to employees for free, for their own consumption, and sells the remainder to members of the low-income community in which the farm is based at half the price of normal eggs; it sold about 45,000 eggs this way in 2020. Two firms (R&D Green Mart in Nepal and SPAR supermarkets in South Africa) used a similar approach with fresh produce: selling the low-grade produce at discount prices through local markets in lower-income areas, including to their farmer-suppliers, while the higher-grade produce is sent to higher-income urban markets (78). Two firms also use the approach for fish, selling smaller-size fish to lower-income consumers in area of their fish farm while selling the larger, more lucrative fish to the high-income, urban market (87,127). One fish-farming company in Kenya was reported to be particularly successful in introducing smaller fish sizes because these aligned with consumers’ desires for each person to have their own fish during a meal, which was not possible with larger fish for the income-constrained (61).

**Nutrition and food safety considerations:** For quality segmentation to work well for the consumer, the quality decrease must not seriously decrease the nutritional value or safety of the product (which could be a risk with the safety of cracked eggs, for example).

**Evidence:** Only one firm using this business model feature had any evidence of reaching the poor or being profitable; this evidence showed unclear reach but that the consumer population had a moderate poverty rate and that the firm was profitable, though not specifically due to the lower-quality product line (87).

### 7.6. Product: Cheaper ingredients

Seven firms (three in Asia, four in Africa; covering dairy products, legumes, snacks, and beverages) used the strategy of replacing more expensive ingredients with cheaper alternatives, or omitting certain ingredients altogether.<sup>22</sup> For example, CTAE in Benin (discussed above) developed a product, *soya goussi*,

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<sup>21</sup> There are exceptions; for example, ‘lamb flaps’ (from the outside of the rib) have long been seen as a waste product in higher-income markets but diverted to lower-income markets (e.g., from New Zealand to Papua New Guinea) as a cheap animal-source food. While affordable, they are also 90% fat and have been critiqued for playing a role in worsening incidence of obesity and diet-related noncommunicable diseases in the recipient markets.

<sup>22</sup> Using cheaper inputs further up the value chain, such as cheaper animal feed, is also a promising option, but it was not included here for the reasons explained in Box 2.

which replaces the mashed seeds used in a traditional dish with roast soybean to create a cheaper product - which is also more nutritious, having a higher protein content. This is particularly low-cost as it is made using soy cake, a by-product of soybean oil production. The product can also be used to substitute for meat, at about a 30% lower price than chicken (92,98,104,129). A Cambodian producer of fortified snacks and therapeutic foods, Danish Care Foods, replaced the imported dairy- and peanut-based products used by its competitors with cheaper local fish and beans, which also enabled it to better cater to local tastes (134). Similarly, a southern African brewer, SABMiller, has succeeded with marketing a beer made from local starches like cassava, maize, and sorghum, as opposed to traditional brewing grains, at a price 40% cheaper than standard beer.<sup>23</sup> And Promasidor, a South African seller of powdered milk, replaces milk fat with vegetable fat, creating both a cheaper product and a more shelf-stable one.<sup>24</sup>

Regarding the *removal* of ingredients, a Ghanaian fortified complementary feeding supplement, KokoPlus, excluded the cereal part of a typical fortified porridge flour, since households already had access to grain flours; this allowed for cost reductions in production (due to fewer ingredients and simpler processes), packaging (due to smaller packages), and distribution (due to smaller and lighter packages) (135).<sup>25</sup> <sup>26</sup> At the same time, this strategy has natural limits: there are only so many ingredients one can remove before a product becomes undesirable or not useful (136).

The reviewed literature also provided two cautionary tales related to this strategy. First, Indian manufacturers Amulspray developed milk-replacement 'tea creamers' using vegetable fats instead of dairy ones (which cost about half as much). These products were very successful (accounting for 55% of UHT milk product sales and a major source of growth), but as an unintended consequence began to be used as drinks for children, with much lower nutritional quality than the milk they were replacing (137). Second, a Mozambican meat processing firm, Alves, sought to replace some of the beef in its hamburger patties with cowpeas, rice, soy, or beans to reduce costs, but was met with very negative customer reactions and had to lower the proportion (and chose to omit these ingredients from the product labelling, to avoid scaring off customers) (138).

Replacement of ingredients may thus seem like a straightforward strategy, but success with it depends on achieving customer acceptability. This can be done through a product that is highly similar to the original (regarding how it can be cooked, taste, texture, and storage properties) or through careful marketing and consumer education.

**Nutrition and food safety considerations:** From a nutrition perspective, the replacement ingredients should be nutritionally similar (or superior) to the original ones. From a safety perspective, it is important to be transparent with the labelling of the products, to make it clear which ingredients have been replaced and with what.

**Evidence:** Three reviewed firms using this feature had some evidence of reaching the poor. In one case this was considered of inadequate quality and in the other two it was adequate. The evidence in one case showed low-to-moderate reach among a poor population, while the other indicated a moderate share reached, in an area with a high poverty rate. One firm had evidence on profitability, but this showed that it was not yet profitable.

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<sup>23</sup> <https://www.euromonitor.com/article/qa-reach-emerging-market-consumers>

<sup>24</sup> <https://www.euromonitor.com/article/qa-reach-emerging-market-consumers>

<sup>25</sup> It is unclear whether this product has yet been profitable, though it aims to become so.

<sup>26</sup> Similar approaches were used for a well-known Indian detergent, Nirma, which sought to compete with the products of multinational firms by removing 'unnecessary' ingredients like softeners, perfumes, or whiteners, thus selling at one-third the price of its competitors (to great success) (34,62).

## 7.7. Packaging: Small sizes

Using small (often single-serving) package sizes was the most commonly used strategy in the review (used by at least 35 firms, from Asia, Africa, and Latin America and covering a range of products) and is probably the most common strategy used for reaching lower-income consumers across product types and contexts (22,26,103). It is also used for non-food products: as of 2002, for example, 30% of personal care products and similar consumable goods in India (e.g., tea, perfume, makeup, shampoo), were sold in single-serve packaging, and this included low-cost as well as premium brands (23). A 2018 survey of Kenya fast-moving-consumer-goods companies found that 97% used small-size packaging to attract lower-income consumers (139): this small-volume trade even has its own nickname, commonly referred to as the 'Kadogo [small] economy'.<sup>27</sup>

This strategy is simple: it responds to the limited cash on hand (and, in some cases, storage space) of lower-income consumers by providing a small quantity of the product at a lower price than the normal package size and thus help manage very low or variable levels of income. It also has other advantages for consumers: allowing for experimentation, enabling purchase of a greater variety of products, enabling purchase of products requiring refrigeration or freezing for people who lack a refrigerator/freezer, improving convenience, helping to limit household consumption, and taking less storage space in the household (23,64). For firms, single-serve packages can expand reach to a new demographic group, lure new consumers and enable brand-switching, help promote the brand, avoiding losing consumers who suffer a decrease in spending power, avoid increasing prices when the price of raw materials increases, and allow for making a lower-cost version available without diluting the brand's image (23,64,140).

Examples of this strategy can be found for firms of all sizes. In the late 2000s, consumer-products giant Nestle launched a series of 'popularly positioned products' to reach lower-income consumers, described as 'affordably priced, nutritionally enhanced, appropriately formatted and easily accessible for emerging consumers.'<sup>28</sup> Many are fortified and locally produced, and typically sold in single-serve packaging. For example, as of 2014 its single-serve dried milk sachets (26 grams) were sold for 30 cents USD in Cameroon, and a single-used sachet of Maggi tomato bouillon was sold for 5 cents (141). The product line enjoyed large sales growth and, as of 2009, accounted for 8% of annual global sales.<sup>29</sup> Unilever has a similar 'Africa Popular Foods' initiative that worked with local manufacturers to produce and market affordable fortified foods, many with small-sized packaging; one of the successes from this initiative was Annapurna salt in Ghana, which helped lead to an increase in coverage of iodised salt from 28% to 51% in two years (as of 2007) (142). DSM recently launched a line of fortified products/supplements in India packaged in 5-20g servings and costing 0.03-0.14 USD.<sup>30</sup>

Among smaller firms, this strategy was found among dairies in Ethiopia, Tanzania, Kenya, and Mali; an edible oil refiner in Uganda; a Kenyan peanut butter producer in Kenya; and several others. For example, when the fortified complementary feeding supplement, KokoPlus, was launched in Ghana, it aimed to address affordability challenges by selling in single-serving (15g) sachets, as compared to the 200-400g sizes already available on the market for porridge flours (135).<sup>31</sup>

There are, however, several drawbacks to this approach. From the consumer perspective, single-serve packages often entail higher per-unit costs (30,140), as more labour, packaging, and handling are needed

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<sup>27</sup> This strategy has also been widely used for personal care products such as shampoo and detergent, succeeding in getting uptake of these products among poor populations that previously used traditional homemade soaps and similar.

<sup>28</sup> [https://www.nestle.com/sites/default/files/asset-library/documents/r\\_and\\_d/news/ppp-fact-sheet.pdf](https://www.nestle.com/sites/default/files/asset-library/documents/r_and_d/news/ppp-fact-sheet.pdf)

<sup>29</sup> Small packaging was also a factor in Nestle Maggi instant noodles' success in PNG (24).

<sup>30</sup> <https://re-emergingworld.com/five-lessons-in-designing-market-based-models-for-nutritious-packaged-food-products-for-the-bottom-of-the-pyramid-consumers/>

<sup>31</sup> Though not included in this review, this strategy can also be used as a business-to-business approach: one Malawian miller, for example, provides affordable flour to small bakery businesses, selling in small packages (by wholesale norms) of 5 to 10 kg, with delivery to remote areas (132).

per unit. Lower-income consumers buying single-serve packages for regular use thus end up spending more over time than if they had bought a larger package. Small packages also require more frequent purchasing and may lead to wastage or inefficient use, since the consumer must use a fixed amount each time (30). They also come with a large environmental impact, particularly for single-use plastic packages in countries without a strong recycling and waste management system. Aiming to use more sustainable packaging (e.g., reusable or biodegradable materials) can be an option (143),<sup>32</sup> but adding an environmental objective can make it harder for a nutrition-oriented lower-income-consumer-focused initiative to succeed (34). For example, the original model for the Grameen Danone fortified yoghurt attempted to use bio-degradable packaging, but the plan was abandoned in favour of traditional polystyrene packaging as it increased the cost and complexity of the project (34). For some products, refillable packaging models like milk ATMs (see next section) can provide an alternative (143).

This strategy is also deployed in informal settings: for example, shopkeepers repackaging sugar or flour purchased in bulk into small plastic bags or folded paper envelopes (139). Informal repackaging, however, has additional drawbacks: such approaches can lead to contamination or adulteration, often fail to transmit the information (e.g., on nutrition and food safety) included on the original packaging, and tend to be less popular with manufacturers (139).

Such approaches (like all others) must also be aligned to customer needs. In Caracas, for example, many of the poor are salaried employees and thus have sufficient income soon after receiving their salary to buy planned purchases (like basic foods) in bulk, saving money per-unit (48). Single-serve packages for basic goods are thus not as popular there as they would be in a setting where many people are on variable, non-salaried incomes. Consumers may also prefer larger packages as they see this as a sign of value-for-money (64). There may also be other benefits that consumers seek from product packaging: research in South Africa found that some consumers do not prefer small 'sachet' packaging as they like to re-use reusable packaging for other purposes, making products that use it a 'two in one' deal (64).

**Nutrition considerations:** A consequence of reducing the package size is that it reduced the nutrients available per unit sold; it is thus important to ensure the package size is large enough to make an adequate nutritional contribution to the diet. Such models are particularly useful from a nutrition perspective for products that are nutrient-dense, as only a small amount needs to be contained to have a nutritional benefit.

**Evidence:** The review uncovered evidence of reach to lower-income consumers for six companies, though most of these used this approach in combination with others, making it difficult to assess the effect of small package sizes, alone. In half of the cases, the evidence was inadequate, showing numbers reached but with unclear information on poverty rates; the other three showed mixed levels of reach among poor populations. In addition, a GAIN-commissioned evaluation of SMEs aiming to reach low-income markets with nutritious foods found that small-serving-size models did help bring nutritious foods within the reach of consumers, based on consumers' own perceptions and the income profile of the consumers purchasing the products (61). Regarding profitability, one firm was found to be profitable, one partially profitable, and three not clearly profitable; it is highly likely, however, that the major multinationals using this strategy do so profitably, given that they have continued to use it for many years.

## 7.8. Packaging: Sell in flexible quantities, or as parts of a whole

Vending food products in flexible quantities (i.e., loose, as opposed to in packages), is commonly used worldwide in both traditional and formal retail outlets, though the review identified only two firms using it, both for the same product. While it has other advantages (e.g., reducing packaging materials), the main advantages from the affordability perspective are the ability to buy very small amounts (at lower cost) and

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<sup>32</sup> Unilever, for example, recently developed a new technology to recycle sachets and pledged to make 100% of packaging recyclable, reusable, or compostable by 2025. <https://www.unilever.com/news/press-and-media/press-releases/2017/unilever-develops-new-technology-to-tackle-the-global-issue-of-plastic-sachet-waste/>

to not have to pay the costs of packaging. It is estimated that such models can make products 30-50% cheaper than branded packaged goods, due to saving on packaging and transportation (63). It can also help improve access to refrigerated products among those without home refrigeration.

Both firms identified in the review were Kenyan milk retailers, Maziwa King and Tarakwo Dairies, which used 'milk ATMs' filled with pasteurised, refrigerated milk that allow customers to choose the amount of milk they want and pay accordingly; a cup of milk (80 mL) costs as little as 5 Kenyan Shillings (around 5 US cents) (87). Such models have been highly popular in Kenya and elsewhere in East Africa, leading to a high level of competition in the market as new entrants 'copycatted' the original firm, in some cases leading to food safety concerns, with reputational risks for other milk ATM operators (60,87,144).

Similar flexible-quantity approaches can be used with other liquids (e.g., cooking oil), powders, and dry goods (e.g., flour), but become more complicated with more complex products. For example, one project attempted to launch a machine selling nutritious ready-to-eat foods, such as fortified porridges, but the cost of a machine with the needed functionalities proved too expensive (63). It has also been noted that such approaches can have difficulties scaling, due to high costs of ensuring consistent product quality (i.e., close management, remote monitoring) across the network (63). Finally, some customers do not trust unpackaged goods' quality; for example, Malawian flour miller BGM deliberately chose to sell its flour in sealed packages, rather than loose, as customers needed to have increased confidence in its quality in a setting with many poor-quality options on the market (132).

A similar approach is to sell something normally sold as a 'whole' item as parts, which was used by six firms covered in the review. For example, several firms in the review made chicken available for purchase in parts, rather than the traditional local approach of only selling a whole chicken (60). This can enable customers to purchase some chicken, even a small amount, for about 0.50 USD, with research showing that consumers perceive these parts to be more affordable than the alternative whole chicken (90). Similar approaches were used for fish.

**Nutrition and food safety considerations:** From a nutrition perspective, this model is likely to be particularly impactful for animal-source foods or other nutrient-dense foods, for which consuming only a small amount can have important nutritional benefits. However, it does not necessarily preserve the labelling information that would be available on a packaged product (e.g., safety certifications, information on fortification), which could lead to potential issues for with regards to product quality and consumer education. It is also important to educate consumers on which containers are appropriate for them to use to store the product, and how to clean them. Finally, the infrastructure used to deliver the product (e.g., the milk ATM) often requires regular and careful cleaning to prevent contamination.

**Evidence:** Both of the milk companies reviewed had evidence of reaching consumers with a moderate level of poverty and doing so profitably, but both were receiving NGO support at the time of the evaluation. In addition, an academic analysis of one of the companies did not offer any clear evidence on reach to lower-income consumers but found that it succeeded in undercutting the prices of many formal-sector suppliers by cutting packaging costs and increased its value proposition to consumers by enabling them to spend only as much as they have available at the time, and still obtain milk (60).<sup>33</sup>

### 7.9. Packaging: No or reusable packaging

While a lack of packaging or the use of reusable packaging can be a feature of flexible-quantity purchasing models, it can also be used independently. This cuts the costs of packaging, which can be a considerable

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<sup>33</sup> However, it sometimes struggled to be competitive compared to informal milk hawkers, as not all consumers attached additional value to the milk being pasteurised.

share of the price in LMICs (particularly where packaging must be imported); it also has environmental benefits in terms of reduction in packaging waste.

In addition to the 'milk ATM' model mentioned above, three firms covered in the review used this approach. One of these was a dairy in Kenya which distributed its pasteurised milk to low-income neighbourhoods in large jugs, enabling consumers to bring their own reusable container to the store to fill up. In this case, the full cost of packaging (including cleaning it) is transferred to the user. The two other firms using this approach were large multinational drink producers, Coca Cola and its subsidiary Minute Maid, that used reusable bottles for their drinks, reducing the cost of single use packaging. In that set-up (commonly used by many drink manufacturers in LMICs), the business retains the cost of the packaging (and cleaning it between uses), but this is reduced due to the reusable nature of it.

**Food safety considerations:** As noted above, where consumers use their own packaging it is important to educate consumers on which containers are appropriate for them to use to store the product, and how to clean them. And where the firm takes responsibility for cleaning the packaging, this must be done adequately to prevent contamination.

**Evidence:** Aside from the two milk ATM firms discussed in the prior section, there was no clear evidence of either reaching the poor or of being profitable for any of the firms using this business model feature.

### 7.10. Distribution: Distribution hubs

Distribution can be a costly aspect of making food products accessible to lower-income consumers, particularly when it involves reaching remote rural areas or difficult-to-access urban slums. Using a 'hub' model, in which aspects of distribution are grouped together instead of done separately, can improve efficiency and cost-sharing, reducing costs overall. Six firms covered in the review (in Africa, Asia, and Oceania) used this approach, though in different ways.

Two firms used a hub for various unprepared food products (and other goods). One, Copia in Kenya, allows customers in rural areas to affordably access a range of goods through assisted e-commerce. They can purchase through local sales agents, paying in cash or with mobile money and obtaining assistance from a local sales agent as needed. The agent then passes on the order, which is grouped with others in the area to be fulfilled through one shipment to the agent, at a much cheaper cost than single-customer deliveries. The model currently covers about 22% of Kenya's rural population and has about 1.4 million customers.<sup>34</sup> The other, in India, uses a distribution hub to reach dispersed tea estates and cut down delivery costs by making goods (including nutritious foods) available in a 'company store.'

The other three reviewed firms used a hub approach for cooked foods. For example, in Papua New Guinea, Nestle developed a hub system to support the sale of their Maggi-brand instant noodles through street food vendors. Nestle created a central hub at which they sell the noodles alongside a pre-prepared vegetable mix to company-approved vendors; they also provide branded clothing and vending supplies. The vendors then mix the noodles and vegetables with boiling water and eggs to make a soup, which is sold on the street at a cheap cost (USD 20 cents per meal, as of 2012). While the model is profitable, the company's aim in using it is as much about promoting the brand to consumers as it is about making sales (24). Through this strategy and others (selling at traditional food outlets, open-air markets, and standard retail and promotion at churches, women's groups, and cultural shows), Maggi instant noodles rapidly achieved penetration among PNG's poor, even though they are very different from (and more expensive than) the local traditional staples (24). In Indonesia, the social enterprise KeBal uses a similar approach for providing fortified foods to street children. They have central cooking centres where fortification happens

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<sup>34</sup> <https://copiaglobal.com/copia-impact/>

during cooking; this centralisation cuts costs and controls quality. The meals are then distributed via street vendors carts in slum areas (78,82).<sup>35</sup>

**Food safety considerations:** As with all ready-to-eat foods, hubs distributing ready-to-eat foods must pay careful attention to food safety and instruct their vendors on how to maintain safe handling to the point of sale. When done well, though, hubs have the potential to improve food safety compared to a model in which each vendor prepares on his/her own, using his/her own food safety practices (or lack thereof).

**Evidence:** One firm using this model had adequate evidence of reaching a high share of the poor target population; while it was not clearly profitable at the time, it was projected to become so.

### **7.11.Distribution: Bespoke last-mile distribution networks**

As noted above, final distribution to the consumer is a key challenge in reaching lower-income consumers affordably. One way to address this, particularly in places where there are few existing retail outlets, is through creation of a bespoke last-mile distribution (LMD) network, a strategy used by 24 firms covered in the review, selling a range of food products and across Asia, Africa, Latin America, and Oceania. Creating such a network involves recruiting and training a new workforce of distribution/sales agents; equipping them for the job; and providing them with appropriate pay, incentives, and supervision. The agents can be employees, independent contactors, or micro-franchisees and they can sell on foot, bike, using a pushcart or adapted motorcycle, from their homes, or through small stalls. The product portfolio that they sell can exclusively belong to the business owner or include other goods (104). Many of these have a focus on women, aiming to both empower women as sellers and reach women as consumers (92); this approach may have particular benefits for nutritious foods, given women's oft-central role in cooking in LMICs. Incentives and motivations for workers can vary by context. For example, one comparative study found that earning income was the main driver for distributors in Ethiopia, whereas for those in Bangladesh it was gaining social status in the community (92).

One reviewed example is the Danone *Kiteiras* model in Brazil, which employs women from low-income neighbourhoods to promote and sell distribute Danone dairy products door-to-door in their communities. As of 2018, it was reported to have a continuously expanding network of saleswomen as well as increasing sales, selling around 148 tons of dairy products per month and reached an estimated 80,000 consumers (145).<sup>36</sup> Nestle uses a similar network in Brazil (143). Unilever uses a network of over a million 'Shokti Ammas' and 'Shoktimaans' to sell their products in India, applying similar models in Egypt, Vietnam, Sri Lanka, Pakistan, Ethiopia, Colombia, Nigeria, and other markets (27,78,146). Throughout West Africa, dairy processor FanMilk sells frozen dairy desserts through about 25,000 mobile street vendors who reach lower-income urban and peri-urban areas, including customers who do not have freezers and thus could not store such frozen foods at home (63,147). In Venezuela, Coca Cola adopted a home-based LMD network by installing branded refrigerators in 30,000 homes in low-income areas, enabling their residents to sell Coke products from their homes; the approach has proved popular with consumers, and to help increase the profitability for the home retailers and thus expand the network, Coca Cola also actively sought out other products for them to sell (e.g., phone cards, cosmetics) (48).

Considering SMEs, in Ethiopia, GUTS Agro-industries, a processor of fortified porridge products, runs a network of women entrepreneurs who sell door-to-door to households and retailers in low-income areas; the sellers are given branded uniforms, custom tricycles, and training and may also sell other, non-competing products (92,98,99,104,129). A Nigerian baby food SME, BabyGrubz, uses a network of women

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<sup>35</sup> While originally launched by an NGO and without evidence of profitability, the plan was for this model to become self-sustaining, with the kitchens and street vendors operating as self-sustaining franchisees

<sup>36</sup> While this model appears to be profitable or at least cost-neutral for Danone, it does rely on an NGO for training and supporting the women.



who are paid to be exclusive distributors of the company's complementary foods while providing peer-to-peer mentoring on the benefits of nutritious foods and breastfeeding (148).

Such networks have numerous advantages. They can reach consumers where they are, increasing the products' convenience; reach areas where existing retail does not reach; fill logistics gaps in the value chain; provide marketing; gain consumer feedback; allow for targeting specific customer segments (e.g., parents of infants); give owners considerable control over pricing and other aspects; and increase consumption frequency by increasing opportunities to buy products (60,63,104). Because they allow for active engagement and one-on-one marketing – which traditional retailers are often unable or unwilling to provide – they can be particularly helpful with a product that is new or requires explanation or consumer education ('high-touch' products) (63,146). They can also be useful for products with unproven demand (i.e., 'high push' products) or which require special equipment to sell (e.g., a cold chain or heating system), as traditional retailers are often risk-averse and thus unwilling to make such investments (146).<sup>37</sup> The use of a known, trusted person as a promoter can help inspire trust in a new product among consumers (58). The convenience aspect can be particularly strong for ready-to-eat products and those that are bulky or heavy, as consumers may be willing to pay more for the direct vending service. Bespoke LMD networks can also complement existing retail channels to reach additional consumers (e.g., those who might not shop in supermarkets); this can help limit 'cannibalisation' of one sales channel with another (63).

At the same time, bespoke LMD networks also have numerous downsides. They are complex and require a significant investment of time and money to set up and run (particularly with regards to supervision and incentivisation), typically more so than traditional retail (due to higher management costs and the need to offer higher margins to retain staff who sell few products) (26,63,104,149). Building a dedicated LMD network in rural areas, in particular, can be very costly due to the lack of residential density and small transaction sizes (58). These costs may be offset by reduced marketing costs or a large market size, but this is not guaranteed (63). It can take years before a network is up and running at scale (104). Sales agents often have both low volumes and small margins, estimated at an average of 6-8 USD per day in revenue and 1-2 USD in profits (63). In rural areas, sales agents (of food and other fast-moving consumer goods) rarely sell enough to sustain a living, making half as much as a comparable urban agent (58). Women-specific networks can be effective and cost-efficient but may have limited reach, usually only work in settings where the position requires little or no travelling, and are most effective for products marketed mostly to women. For the women themselves, income earned varies widely from marginal to substantial, but does not necessarily translate into empowerment (150).

In some cases, shared distribution channels can be created, reducing costs and time (26); these can include both for-profit channels (e.g., agents of another company with a product that is not a direct competitor) and non-profit channels (e.g., community health workers who earn additional income by selling for-profit goods, self-help groups) (104). However, this needs to be the right fit: the existing offering must be compatible with new product(s), and sales agents must have time and local credibility (63). In the case of using non-profit channels, careful attention is needed to ensure alignment between the non-profit mission and the for-profit good, and in some cases community members have been reluctant to purchase items from health and NGO workers whom they associate with providing *free* goods and services (151)\*.<sup>38</sup>

Through work in Burkina Faso, Vietnam, and Madagascar, the NutriDev project of the NGO GRET (which aimed to develop commercially viable fortified complementary foods) concluded that strengthening

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<sup>37</sup> For well-established brands with high market share, installing shared infrastructure (e.g., a branded fridge) at a retail outlet can also make sense. But for small firms with little-known brands, the return on investment is likely to be low, since shopkeepers will likely use the infrastructure to sell other, more popular products (62).

<sup>38</sup> While partnering with other organisation (such as NGOs) for distribution is a common approach for companies seeking to reach lower-income consumers (78), many of these models would not be sustainable without these grant- or donation-funded NGO contributions and are thus outside the scope of this review.

*existing* distribution networks, rather than creating new ones, was the optimal approach. However, in dense urban areas, the creation of specific proximity distribution models proved successful in terms of both high coverage and likely economic sustainability; this was the case for Nutri'zaza in Madagascar (83). Even so, Nutri'zaza has struggled with high turnover of facilitators (85).

Similarly, Grameen Danone originally made its fortified yogurt available primarily through a network of door-to-door-selling 'Shokti ladies'. However, it struggled with considerable turnover and difficulty creating sufficient incentives for 'Shokti ladies' to sell adequate volumes of yoghurt to lower-income households. Due to this, as well as to an increase in availability of refrigerators at retailers and in children purchasing for their own consumption, Grameen Danone increased its focus on a fixed-retail channel that mostly reaches urban consumers who have somewhat lower nutrition vulnerability, though still being poor and at risk of micronutrient deficiencies (60,63,80,81,152).

**Nutrition and food safety considerations:** Bespoke LMD networks are useful for directly targeting consumers with specific nutritional needs (e.g., young children) and educating consumers on nutrition topics or product attributes but may be challenging for certain nutritious foods that are heavy, bulky, or require careful handling or storage. In the latter case, agents must be carefully instructed on the proper practices to ensure food safety.

**Evidence:** Eight firms covered in the review using bespoke LMD networks (most of which also used other business model features to reach lower-income consumers) had some evidence of reaching lower-income consumers; for four, this was considered of adequate quality, though only one showed a large share reached among a poor population. For example, a comparison of different models for selling complementary foods/supplements for young children in Ghana found the proximity distribution model to achieve considerably higher coverage than a retail-based model (62% versus 13% of children receiving in the prior seven days) (86), and a study of a similar product in Cote d'Ivoire found very low levels of coverage (5%) through retail channels (88). For four firms, the evidence also mentioned profitability, but only one was shown to be (partially) profitable at the time.

### **7.12. Distribution: Existing last-mile distribution networks with new support**

An alternative to creating a new bespoke LMD network - or to the default approach of relying on existing retail outlets, as they are - is to use existing distribution and retail outlets but provide them with additional support to make them more effective at selling the target product. Ten firms covered in the review (in Africa and Latin America and selling a range of products) used this approach.

Using existing retail is often the most cost-efficient and sustainable distribution channel and helps to ensure steady supply (58,83); such retailers are often close to customers, have existing relationships with them, and may allow them to purchase on credit, helping increase access and manage customers' variable cash flows (45). For example, in Kenya, small shops known as 'dukas' account for two-thirds of the country's annual retail sales and about 80% of sales of fast-moving consumer goods such as food; about 95% of Kenyans shop at dukas, and they are the primary source for the 56% of Kenyans who live in low-income informal settlements (153).

However, retailers may demand high margins and thus raise sales prices, particularly for small players (107). They may also be hesitant to engage in marketing of new products (58) and may lack the infrastructure needed to distribute perishable foods (60). Small retailers can thus be supported through various micro-distribution models (i.e., small, regular deliveries; custom product assortments; local distributors; and small transport like pushcarts or bicycles), capacity building to help them grow their businesses and encourage loyalty, and providing credit or facilitating access to financing (45,103). This can both incentivise them to sell the new product and improve their capacity to do so.

Some firms focus on improving the distribution of products to retailers that are hard-to-reach. For example, Coca Cola and its subsidiaries in East Africa have developed 'manual distribution centres' that cheaply distribute to small shops and kiosks that are on narrow, unpaved, or unmaintained roads that could not be served by standard delivery trucks; they support small, independent distributors who cover within about a 1 km range using things like motorcycles and pushcarts. This also enables them to make small and frequent deliveries, which is better suited to the low-cash-flow, small-storage-space reality of local retailers. Adopting this approach led to a significant increase in sales due to the increased distribution range and lower costs and is implemented in various formats in 25 countries, with more than 80% of products distributed through the model in Ethiopia and Tanzania (82,154,155). Alqueria, a dairy company in Colombia, targets small retailers in very small towns and remote areas by deputising a local resident to act as their distributor, using his/her home as a warehouse for its UHT milk and providing financing for a small delivery vehicle adapted to the rural conditions. These 'micro-sales' account for 5% of the company revenue, with strong growth (45,82,156).

Other firms focus at the retail level itself. Wrigley in Kenya developed a new route to market for its chewing gum products by supporting existing street hawkers with 'Stock Points' where they can pick up products and marketing/vending material; they are also free to sell non-Wrigley products. An SME in Kenya uses existing vegetable vendors to sell its chicken products: these 'mama mboga' can buy chicken offal and off-cuts at a cheap price in exchange for helping with the chicken slaughter, and can then sell them on to their existing (often low-income) vegetable consumers.

**Evidence:** The review identified no clear evidence of either reaching the poor or of being profitable for any of the firms using this business model feature.

### **7.13. Distribution: Direct sales in underprivileged areas**

Some firms undertake retail sales themselves, directly, which can help to cut out the costs of intermediaries and allow them to more directly control pricing. When done in low-income settings with limited access to affordable nutritious foods, this can help to reach lower-income consumers. Ten firms covered in the review used this strategy, particularly for animal-source foods such as chicken and eggs.

For example, several Mozambican egg producers offer direct-to-consumer sales from their production site, making eggs available more cheaply (due to no transportation costs and few intermediaries) than in the open market, in a place that consumers can easily access on foot or bike. One of them is able to sell eggs at 12-15% below the market price by using this strategy. Nestle uses an innovative approach to this strategy in Brazil: it created a barge that can sell its products in remote parts of the Amazon that cannot be reached by road.

**Evidence:** The review identified no clear evidence of either reaching the poor or of being profitable for any of the firms using this business model feature.

## **8. DISCUSSION**

### **8.1. Overview of results and discussion of their applicability and limitations**

Through a systematic review of research as well as a scoping review of firms, this study has attempted to identify the business model features that companies use to reach lower-income consumers in LMICs with (nutritious) food products. After reviewing about 8,000 titles, 74 documents were deemed eligible for inclusion in the systematic review, mostly reporting on case studies of specific approaches, while the firm scoping uncovered 99 eligible firms, primarily in East and Southern Africa and South Asia. However, only

about 15 firms were identified as having actual published evidence of reaching lower-income consumers with their products, and much of this evidence was of poor quality.

The review found that, at a conceptual level, lower-income consumers could be reached through adaptations to the product, to the branding and marketing, and to the distribution and retail model; it also noted that scaling was an essential but difficult consideration, with several options proposed for reaching scale. In addition to these cross-product considerations, the review made clear that there are a number of challenges with nutritious foods, specifically - including limited demand and awareness, lack of trust and issues with labelling, risk aversion, and low willingness to pay.

The review also uncovered 13 specific business model features that firms have used to reach lower-income consumers with food products: cross-subsidisation, increasing value through convenience, use of waste products, less-desired parts, quality segmentation, cheaper ingredients, small sizes, selling in flexible quantities, no or reusable packaging, distribution hubs, bespoke last-mile distribution networks, providing new support to existing retail/distribution networks, and direct sales in underprivileged areas. It was noted that none of these features alone could ensure success with either reaching lower-income consumers or doing so in a financially viable way: each feature would need to be supported by the other aspects of a solid business model, and many firms (about one third of those included in the review) use several of these business model features at once. In addition, while the focus here was on formal, 'modern' firms, many of these approaches can be, and in some cases have long been, used by traditional food producers and retailers.

While the review did not limit its scope to only examining models used by SMEs, it is clear that the results largely apply to them: all of the business model features identified here were used by SMEs, with many also being used by large multinational firms. While the scale covered by the firms was generally larger for the multinationals, it was not clear that they were more successful than the SMEs in reaching lower-income consumers. Certainly, some business model features will be more easily applied by a larger firm (for example, cross-subsidisation is easier to make work when one has many products, contracts, or consumer groups), and there are some cost advantages to production at scale that may make lowering product costs more feasible for a large firm. However, the differences in attempted reach to lower-income consumers across the two firm types seems relatively modest. This result is consistent with the wider BoP marketing literature: while early writing on BoP marketing assumed it would be undertaken by large multinationals, in practice smaller firms are the ones who have actually undertaken many of the adopted approaches (37).

Similarly, the review did not limit its scope to only examining specific foods, but the results do not suggest that vastly different business model features are needed to successfully reach lower-income consumers with highly nutritious foods as opposed to less nutritious ones (setting aside the issues summarised in Section 4 about the challenges of marketing nutritious foods). All business model features considered were used to sell nutritious foods, with most also used for less-nutritious foods. In reality, there is likely greater application of some approaches to less-nutritious foods, given a research bias in favour of nutritious foods. Certain business model features did pose challenges for certain nutritious foods (e.g., selling without packaging or use of reusable packaging could make quality control of fortified foods more difficult), but the difference appeared less than might have been expected. Of course, less nutritious foods face challenges among consumer groups of all types when competing with alternatives that are dense in salt, sugar, and fat and engineered (through processing and marketing) to be easy to consume to excess. This is evidenced by the success of 'junk food' products like soft drinks among lower-income people whose diets remain deficient in nutritious foods and suggests that many business model features discussed here will need to be paired with strong demand-creation work if they are to make the foods they are selling truly *desirable* in addition to being accessible.

There are a number of limitations to this review. The literature review only used two databases for searching, and only included English-language resources. It thus may have missed some sources, particularly related

to work in Latin America. The scoping of firms was far from exhaustive, and was biased towards GAIN-connected firms (thus likely overrepresenting those producing fortified foods and complementary foods, and in East Africa). In addition, information about firms was generally based on their own reports and claims and was rarely independently verified; some of it may also be out of date, as business conditions change rapidly. Firms were included where they were aiming for a profitable business model in the long term, even if to date they had been reliant on NGO funding; this may have led to inclusion of some non-commercially viable examples.

The review also made clear that there is a considerable deficit of high-quality evidence on the ability of the business model features discussed here to actually reach lower-income consumers. This is not surprising: a 2014 systematic review of BoP marketing initiatives across sectors found that only 48 (of 104) considered social impact on local populations and only 34 measured the economic impact of BoP marketing initiatives on the firm. Moreover, numerous authors have commented on the lack of evidence about private-sector contributions to nutrition, in general (20,107,110,124,152). The strongest evidence comes for models serving to sell foods for young children, for which there have been several dedicated studies – though the initiatives studied have not always been successful (58,83,107). Screening undertaken for the review made clear that there is considerably more evidence about attempts to reach lower-income people as members of the supply chain (e.g., using smallholder farmers as suppliers), as opposed to as consumers (a subject beyond the scope of the review) (37). There is thus a need for additional rigorous evaluation of these approaches, considering their reach to lower-income consumers, their impact on those consumers' diets, and whether or not this is done profitably. The latter aspect is essential but often omitted or only superficially addressed in the existing research, which largely comes from the nutrition field. Moreover, even where some information was included on profitability, it was very rare for there to be any analysis of the reasons *why* some firms were able to implement lower-income-consumer-focused approaches profitably while others were not – even though this information is critical for successful replication.

Before concluding, the next sub-section discusses what can be done to help businesses better reach lower-income consumers with nutritious foods, as well as the limitations of what business cannot do.

## **8.2. The role of the public and civil-society sectors in supporting businesses to reach lower-income consumers with nutritious foods**

While this review has made clear that there are numerous ingenious approaches that companies use to try to reach lower-income consumers with their nutritious (and less nutritious) food products, there are also ways in which firms are limited and would be helped by public-sector or civil-society action. This is particularly important to create an environment that is more conducive to the sale of highly nutritious foods, as opposed to less-nutritious alternatives. Indeed, many successful models engage with lower-income consumers in partnership with NGOs or the government (82,96). Such actors can help at the *policy* level by enacting enabling policies or undertaking advocacy with the government; at the *market or supply chain* level by supporting product development and market research, fostering information-sharing and coordination among actors within a supply chain, and spurring collective action; and at the *firm* level by supporting certification, facilitating access to financing, providing training and advice, advocating for consumer needs, and sharing knowledge of the local market and cultural context (92).

**Policy.** In the policy realm, policies can work to ensure a more supportive tax system, including for the importation of specialised ingredients for nutritious foods; support improvements to infrastructure to reduce losses and increase efficiencies within the supply chain; facilitate credit access and technology transfer; enable investment; and reduce administrative burdens for licensing of food firms and products (127,140). Where needed, they can put in place subsidies that favour nutritious foods or taxes that disincentivise less nutritious foods (157). They can also create nutrition standards, such as bans on trans fats or mandatory fortification (89), and create, promote, and enforce labelling and certification schemes for

nutritious foods (e.g., the Enrichi seal used to denote fortified foods in West Africa) or safe foods (e.g., the 'clean street food hubs' developed in India (158)) (112,127). Government must then also monitor and punish counterfeit products and those making false nutrition or food safety claims (119). Finally, government can create standards for and regulate appropriate marketing, especially for marketing to children and for nutrition claims and sensitive products, such as breastmilk substitutes and commercially produced complementary foods (107). While governments are needed to enact such policies, civil society groups can advocate for their adoption and enforcement.

**Market / supply chain.** Development of new products and techniques can be very expensive, beyond the costs of any individual company – particularly for smaller firms – and business models are rarely profitable during the product development phase (101). There can thus be a role for the public sector or civil society to play in supporting product development, including through sponsoring research on efficacy or making pre-competitive investments (78,112). For example, the fortified porridge flour Incaparina in Guatemala was developed in the 1950s and 60s by the Pan American Health Organization's Institute of Nutrition of Central America and Panama (INCAP), a public sector institution with an aim of filling nutritional gaps, but was later transferred to a private company for purely commercial production, which proved to be successful and sustainable (114). The public sector and civil society can also help to support product development and marketing by gathering and disseminating information on lower-income consumers – e.g., their purchasing patterns, preferences, and aspirations as relevant to nutritious foods – as such information is often lacking (27,127).

Governments and civil society can also support the development of demand for nutritious food by undertaking demand-creation campaigns for unbranded nutritious food products (e.g., eggs, fruit) or for nutrition or good health in general (96,108,111,113,119,127,152). In the cases of novel foods (e.g., fortified products), the trust or credibility of the public and civil-society sectors can be leveraged to create demand (45). This can include through procurement for distribution in social protection programmes, which can help to build public familiarity and trust (in addition to creating a ready market) (159). Finally, they can work to support business networks, perhaps with specific focuses on nutritious foods, which can help to improve coordination among actors, increase market efficiency, and support marginalised groups, such as female entrepreneurs (160,161). This can also help to support the scaling of successful business model features across multiple firms through potentially socially beneficial forms of copycatting (60).

**Firm.** At the firm level, civil society organisations can provide technical assistance and training to firms to support processes such as improving products' nutritional content, applying best practices during processing, obtaining certifications (e.g., Fairtrade or on food safety), better reaching lower-income consumers, or improving marketing (92). They can also share information they may have on the local market or the cultural context, and ensure that the needs of lower-income consumers are accurately represented. The public sector can also play a role in supporting local nutritious food-producing firms through public procurement – e.g., for school food programmes, hospitals, or similar (78,127). Such approaches can increase lower-income consumers' access to nutritious foods from SMEs (96), and being able to leverage this steady demand can also help firms achieve economies of scale that enable them to more efficiently serve the private market; they may also help to build trust in the product among consumers (58). NGOs can cooperate directly with businesses for distribution or marketing (e.g., allowing a firm to leverage their existing network of community workers).<sup>39</sup> Finally, civil society can help support nutritious food SMEs to access needed financing on fair terms – currently a major barrier to their growth (124).

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<sup>39</sup> Such approaches tend to improve reach to lower-income consumers (96,162), though it may entail an overall business model that is not profitable, once NGO costs are considered.

## 9. CONCLUSION

This study has reviewed how firms can adapt their business model to reach lower-income consumers in LMICs with food products, uncovering 13 diverse business model features. While this report has focused on successful examples of applying these, it is important to note that there are also many unsuccessful examples, and companies often struggle to reach lower-income consumers with nutritious foods - there are likely failures to do so involving every single business model feature listed here. Moreover, there are limitations on what these approaches, even when successfully executed, can do: they are unlikely to reach the 'poorest of the poor', who are most in need of dietary improvement. Many such households cannot even afford a basic energy-sufficient diet and need to be supported through short-term social protection programmes and longer-time poverty-reduction efforts that can increase their incomes and living standards and enable them to access healthy diets.

However, with sufficient support from government and civil society, particularly to incentivise the sale of nutritious foods over their less-nutritious alternatives, businesses do have a key role to play in making nutritious foods available, affordably, to lower-income consumers. This report has suggested specific ways in which they can adapt their offering to do so, while also highlighting important gaps in the evidence of their effectiveness.

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