# Ultra-processed Food Labeling: fostering consumer vulnerability in emerging markets

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# Ultra-processed Food Labeling: fostering consumer vulnerability in emerging markets

**Abstract:** This study explores the marketing strategies used in ultra-processed food labeling in emerging markets, focusing on their role in fostering consumer vulnerability. With diets increasingly dominated by ultra-processed foods (UPFs), particularly in Brazil, these products are associated with high energy density, low nutritional value, and the prevalence of diet-related chronic diseases. Despite regulatory measures, such as front-of-package warning labels, companies exploit gaps by positioning sugar levels near regulatory thresholds, using health claims, and leveraging child-focused branding to mislead consumers. The analysis highlights how these practices target vulnerable populations, exploiting lower nutritional literacy and weaker regulatory enforcement. By examining the interplay between labeling practices, marketing strategies, and consumer perceptions, this study underscores the need for stricter enforcement, public education, and tailored policy interventions to combat the deceptive promotion of UPFs and foster healthier food environments in emerging markets.

**Key Words:** food labeling, consumer vulnerability, ultra-processed foods (UPFs)

**Track:** International Marketing & Marketing in Emerging Countries

## 1. Introduction

Global diets have changed dramatically, especially in emerging marketing. Consumers have moved from unprocessed or minimally processed foods towards ultra-processed foods (UPFs) that are "formulations of ingredients, mostly of exclusive industrial use, that result from a series of industrial processes (hence 'ultra-processed')" (Monteiro et al. (2019a; 2019b). These foods often contain additives (e.g., flavors, colorants, emulsifiers, and preservatives) designed to enhance palatability and extend shelf life. The rationale behind food companies' efforts in food design is based on creating more appealing products with lower production costs and longer expiration dates (Weber, 2024).

UPFs are characterized by their high energy density, low nutritional value, and extensive industrial processing, reshaping food systems and contributing to rising rates of diet-related chronic diseases (Baker et al., 2020). Within this context, food labeling plays a key role, but while designed to empower consumers with essential information, it often becomes a tool for manipulation (Hastak and Mazis, 2011). Pulker, Scott, and Pollard (2018) demonstrate how health and nutrition claims on labels are frequently employed to mislead consumers, fostering a perception of healthfulness that may not align with the actual nutritional quality of the product. For instance, companies are including micronutrients in UPFs to be able to make health claims (Popkin et al., 2021).

These practices disproportionately affect vulnerable populations in emerging markets, where lower literacy levels, limited nutritional awareness, and weaker regulatory enforcement exacerbate consumer vulnerability, that is, " a state in which consumers are subject to harm because their access to and control over resources is restricted in ways that significantly inhibit their abilities to function in the marketplace" (Hill and Sharma, 2020, 554). In the context of food labeling, this vulnerability is compounded by the aggressive marketing strategies of the UPF industry (Hastak and Mazis, 2011; Pulker, Scott, and Pollard, 2018).

Monteiro et al. (2019) and Block et al. (2011) advocate for a paradigm shift in how food labeling is conceived and regulated, emphasizing the need for policies prioritizing food well-being over corporate interests. However, achieving such reform in emerging markets requires understanding how labeling practices contribute to consumer vulnerability and the broader political and economic forces at play. Therefore, the main objective of this paper is to explore how food labeling practices in emerging markets foster consumer vulnerability.

## 2. Theorethical background

### 2.1 Ultra-processed food consumption in Emerging Market - Brazil

The dietary patterns in Brazil have undergone significant transformation over recent decades, marked by a substantial increase in the consumption of ultra-processed foods (UPFs). Louzada et al. (2023) highlight that from 2008 to 2018, UPF consumption rose across all age groups in Brazil, especially among children and adolescents. The growing reliance on UPFs correlates with declining overall diet quality, as their high energy density and low nutritional value contribute to the dual burden of undernutrition and obesity observed in the country (Castro et al., 2023).

Among infants and young children, the trend is particularly concerning. Pérez-Escamilla (2023) provides a radiography of the early nutritional transition in Brazil, revealing that UPFs have infiltrated the diets of children under five, a critical period for establishing lifelong dietary habits. The prevalence of ultra-processed food intake among children under five is 88.8%. Lacerda et al. (2023) further report that children aged 6–23 months, especially those from urban and socioeconomically disadvantaged backgrounds, frequently consume UPFs such as sugary snacks, instant noodles, and powdered beverages. This early exposure displaces more nutrient-dense options like fruits, vegetables, and whole grains, undermining the potential for achieving minimal dietary diversity and adequate nutritional intake during crucial developmental stages.

The broader implications of UPF consumption on Brazil's nutritional profile are striking. Louzada et al. (2015, 2018) demonstrate that the share of UPFs in the Brazilian diet strongly determines the overall nutritional quality, with higher proportions of UPFs linked to lower intakes of essential nutrients like fiber, protein, and vitamins. This dietary shift has contributed to escalating rates of non-communicable diseases (NCDs), including obesity and type 2 diabetes, creating a significant public health challenge. Addressing this issue requires urgent policy interventions to curb the marketing and availability of UPFs while promoting the accessibility and affordability of healthier, minimally processed alternatives, particularly for vulnerable populations.

### *2.2 Food labeling in emerging markets*

Food labeling is a critical mechanism for informing consumers about food products' nutritional content and health risks, particularly in emerging markets where dietary patterns are rapidly shifting toward processed and ultra-processed foods. Guerreiro et al. (2024)

emphasize that front-of-package labeling (FOPL) is pivotal in reducing information asymmetry and enabling consumers to identify unhealthy products quickly. This is particularly important in regions with lower literacy levels and nutritional awareness, as labels with simple, clear messaging can bridge significant knowledge gaps. For example, Chile's adoption of black octagon warning labels for foods high in sugar, sodium, and saturated fat has effectively empowered consumers to make healthier choices (Dintrans et al., 2020). However, achieving widespread impact requires tailoring labeling systems to local contexts, including cultural preferences and consumption behaviors.

Emerging markets face unique challenges in implementing adequate food labeling policies. Guerreiro et al. (2024) highlight industry resistance as a primary barrier, with companies often arguing that FOPL increases production costs and creates trade barriers. In Brazil, the industry coalition Rede Rotulagem opposed stringent labeling measures, advocating for alternative systems such as the "traffic light" model, which was perceived as less damaging to business interests. Similarly, in Chile, phased implementation of nutrient thresholds was necessary to balance public health priorities with industry adaptability (Dintrans et al., 2020). Additionally, consumer comprehension remains a critical hurdle. As Latino et al. (2019) note, overly technical or cluttered labels can confuse consumers, especially those with lower literacy or limited familiarity with nutritional information. This underscores the need for a user-friendly design featuring intuitive symbols and simplified language.

Several countries have demonstrated how public policies that enforce food labeling practices can effectively address consumer vulnerability while navigating political and economic challenges ( Dintrans et al., 2020; Guerreiro et al., 2024). Chile's comprehensive strategy, which integrated FOPL with marketing restrictions and bans on unhealthy foods in schools, is a model for other nations. Dintrans et al. (2020) describe how Chile gradually implemented its regulations, adjusting nutrient thresholds over time to allow stakeholders to adapt while maintaining public health goals. Similarly, Brazil's magnifying glass FOPL system was designed to be culturally appropriate, avoiding alarmist messaging while still conveying critical nutritional risks (Guerreiro et al., 2024). These cases highlight the importance of stakeholder engagement, including public consultations and collaboration with academic and civil society organizations, in crafting effective and widely accepted labeling policies.

## 3. Method

Previous research on food labeling has primarily relied on downloading product information from vendor websites. However, an initial analysis of product images on the websites of online retailers and manufacturers reveals that these images are often incomplete. They do not accurately reflect what consumers encounter on supermarket shelves. Therefore, we opted to take pictures of products on-site. We selected three product categories that are focused on children and adolescents and took photos of the products: Juices (40 products), Cookies and Snacks (xx products), and Dairy (75 products). We organized an exploratory content analysis to identify the marketing strategies that companies selling ultra-processed food use. For each product, we took photos of the front-of-packing and from the back to capture ingredients and nutritional content. This information is relevant because since Brazil created a system based on labels that inform consumers that products are "High In" sodium, added sugar, and saturated fats, companies are adjusting their products to avoid the labels.

## 4. Analysis

The main objective of this analysis is to portray the main strategies companies are using within the ultra-processed market. By understanding how companies are dealing with the introduction of warning labels, we are more equipped to know how food labeling strategies can be devised to address public health concerns and influence consumer behavior effectively. By analyzing the marketing communication strategies, nutritional content, and front-of-package labeling (FOPL) on products targeted at children, we can identify trends in how companies adapt to regulatory frameworks while still aiming to attract their target audience. This understanding provides valuable insights into how labeling policies, such as those for high-fat, salt, and sugar (HFSS) products, can be improved to minimize consumer confusion, counter misleading health claims, and promote healthier food choices. Furthermore, it highlights the importance of continuously monitoring and refining labeling standards to ensure they achieve their public health goals.

4.1. Warning labels

Brazil's adoption of front-of-package (FOP) warning labels marks a significant step in public health policy, inspired by Chile's pioneering system. Implemented through Normative Instruction No. 75/2020, Brazil's triangular warnings highlight excessive levels of sugar, sodium, and saturated fats, aiming to inform consumers and encourage healthier choices. This initiative addresses the rising prevalence of ultra-processed foods in Brazil.


Figure 1. Negresco Cookies with warning labels

While similar to Chile's black stop signs, Brazil's design reflects local socio-economic and cultural considerations. This regulatory innovation exemplifies the global trend of tailoring public health strategies to national contexts to combat unhealthy dietary patterns.

*4.1 "High in" Labels and Nutritional Food Design*

Our analysis shows that many products are designed with added sugar levels positioned just below the threshold that would trigger mandatory high-sugar warning labels.


Figure 2. DelValle Kapo Strawberry Juice

This deliberate approach allows manufacturers to maintain the appeal of sweetness while avoiding the potential negative consumer perceptions associated with front-of-package warnings. At the same time, some products intentionally stay well below the threshold, signaling a focus on healthier branding or targeting a health-conscious segment of the market. This dual strategy—hovering near the regulatory limit while selectively offering lower-sugar options—demonstrates how companies adapt their product designs to balance regulatory compliance with market demands, potentially limiting the effectiveness of such regulations in promoting public health.

### *4.2. The use of micronutrients as reasoning for health claims*

The packaging of this ultra-processed cookie prominently features a well-known children's animated character from "Paw Patrol," strategically appealing to young consumers. The bright, vibrant colors, cartoon illustrations, and playful design foster a sense of fun and excitement, making the product highly attractive to children.

Figure 3. Paw Patrol Cookies

Despite the inclusion of a front-of-package warning label indicating the product is high in added sugar, the company uses marketing tactics to counterbalance this negative perception by emphasizing health-related claims such as being a "source of calcium and vitamins (B1, B2, B3, B6)" and using "Farinha Láctea," which carries connotations of nourishment and traditional recipes. Brazilian families are used to feeding children with "Farinha Láctea," a wheat-based cereal with vitamins, having an emotional connection to parents.

The same strategy is used by another company, selling cookies high in sugar and saturated fats (see Fig. 4). In this case, the product promises to be a source of vitamins. At the same time, the front of the package says that these vitamins have been added.


Figure 4. Tortuguita Cookies

This dual strategy highlights how companies attempt to neutralize the impact of regulatory warning labels by leveraging health claims that do not align with the nutritional quality of the product. By associating the cookie with essential nutrients and wholesome ingredients, manufacturers create a misleading impression of healthfulness, despite the product being ultra-processed and high in sugar. This approach exploits parents' desire to provide nutritious snacks for their children while ensuring the product remains visually and emotionally appealing to its primary target audience.

In Figure 5, the company chooses to focus on vitamins and calcium as a tool to overcome the warning labels of high in sugar and saturated fats.


Figure 5. Danix Cookies

Additionally, the example in Fig. 6 exemplifiers how companies develop products aimed at children (brand Itambé Kids), use very famous characters (Wonder-Woman and Batman), and at the same time to be a source of vitamins A+C+D+E and that the product has a new formula. This particular product portrays the product's nutritional content, with more than 10 ingredients, clearly classifying this product as an ultra-processed food.


Figure 6. Itambé Kids

In essence, the reliance on children's characters and micronutrient claims demonstrates how the food industry adapts to the introduction of warning labels by employing marketing strategies that emphasize health benefits. These tactics may undermine the efficacy of regulatory measures designed to curb unhealthy food consumption, particularly among children. This practice raises concerns about “healthwashing,” where health claims are used to disguise the ultra-processed nature of a product, contributing to the public health challenge of reducing sugar intake in children's diets.

## 5. Conclusions

This research analyzed front-of-package labeling strategies in emerging markets, focusing on Brazil's adaptation of nutrient warning systems and the industry's response. By examining a sample of ultra-processed products, we identified trends such as the strategic positioning of sugar content near regulatory thresholds and the use of health claims and child-targeted branding to counteract the impact of warning labels. These findings underscore the need for policymakers to address consumer vulnerability by implementing stricter enforcement, refining nutrient thresholds, and educating consumers. Drawing lessons from Chile and Brazil, phased implementation and incentives for reformulation can balance public health objectives with industry adaptability. Addressing consumer vulnerability requires both clear, evidence-based thresholds and robust educational campaigns to enhance label comprehension among low-literacy populations. Additionally, countering industry strategies, such as borderline nutrient formulations and healthwashing claims, demands stricter oversight and enforcement. By embedding labeling policies within a broader public health framework, emerging markets can empower consumers, mitigate misinformation, and reduce the growing burden of diet-related diseases.

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