

# Retail diversity for dietary diversity: Resolving food-safety versus nutrition priorities in Hanoi

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## ABSTRACT

Amid rapidly transforming urban food environments, Asia's cities are faced with the dilemma of ensuring food and nutrition security for their populations while also combatting food-safety concerns.

The current food environment in Hanoi, Viet Nam, only provides a minimal level of diet quality for the urban poor. Modernization policies aim to improve food safety by promoting the closure of open-air markets in favour of supermarkets and convenience stores. Traditional open-air markets are the urban population's main source of food and ensure a healthy diet, but they do not offer formal food-safety guarantees. In contrast, modern retail outlets, such as supermarkets and convenience stores, provide foods with safety guarantees, but are not utilized by the urban poor for myriad reasons, including cultural shopping preferences, habits and convenience (hours of operation, formality, cost and perceived freshness). Though designed to increase the consumption of safe foods in Hanoi, these modern outlets may also stimulate the consumption of unhealthy ultra-processed foods and reinforce food-access inequality. The continued closure of traditional open-air markets in favour of modern retail outlets may be jeopardizing the future diet quality of Hanoi's urban poor. We recommend that food-safety policies embrace the existing diversity of local food retail systems and identify opportunities to improve food safety at open-air fresh food markets.

## FOOD SAFETY AND NUTRITION IN TRANSITIONING URBAN FOOD ENVIRONMENTS

Food and nutrition security have long been primarily a rural agenda. However, rapid urbanization and food-system transition present urgent challenges when it comes to the provision of safe, nutritious and sustainable food in cities (Tefft et al., 2017). Emerging economies of the Global South are experiencing this most intensely, particularly in Asia, where the rapid rate of urbanization has resulted in a concurrent rise in (i) non-communicable diseases (NCDs) (Abarca-Gómez et al., 2017; Boonchoo et al., 2017; Do et al., 2017); (ii) the urbanization of poverty (Asian Development Bank, 2014; Ravallion et al., 2007; Kanbur and Zhuang, 2013); and (iii) malnutrition (Mohiddin et al., 2012). For emerging Asian economies, food-safety concerns not borne by developed regions and western societies (Mylona et al., 2018) complicate these issues (Ortega and Tschirley, 2017; World Bank, 2017).

These food-safety concerns are affecting food retailing policies. Across Southeast Asia, rapid economic development, accelerated by foreign direct investment, has resulted in the "supermarketization" – the closure of open-air markets in favour for modern retail outlets – of urban food environments (Reardon and Timmer, 2012; 2014).

The increased presence of modern retail outlets is also associated with food-access inequality, for two main reasons. First, supermarkets are unevenly distributed within cities (private supermarket companies mainly target middle- and higher-income areas), and replacing markets with supermarkets catalyses the gentrification of lower-income areas (Moore, 2013; Cohen, 2018; Wertheim-Heck et al., 2015). Second, in Asia, the replacement of open-air wet markets with supermarkets has been shown to exclude lower-income populations, as they are either unaffordable, unsuitable or unwelcoming. The restricted affordability is not only down to supermarkets' higher prices, but also to parking fees for bikes and motorbikes, and the fact that supermarket shopping is often geared towards large-volume, weekly purchases. The urban poor tend to buy food daily, based on a daily food budget.

What's more, supermarkets have restricted opening hours that do not fit with those daily, early-morning food-shopping practices. Shopping at supermarkets is also a time-consuming process if one takes into account parking, weighing of produce and waiting at checkouts, especially given the low-volume daily shop.

Lastly, although the urban poor tend to visit supermarkets and malls to window-shop as a leisure activity at the weekends, they do not feel welcome in supermarkets, which generally have security guards and lack the personal vendor interaction of traditional outlets (Maruyama and Trung, 2007; Wertheim-Heck et al., 2015). Consequently, the right of access to safe and healthy food for all is being challenged.

**This modernizing transformation of the food environment has had mixed consequences for urban consumers, especially in Asia (Baker and Friel, 2016; Hawkes et al., 2017). Negative impacts on diet and health have been observed as a consequence of decreased consumption of fresh fruit, vegetables and traditional foods generally, coupled with the increased availability and consumption of ultra-processed and packaged foods (such as sausages, ready-to-eat meals and instant noodles), which are often high in salt, fat and sugar and have been associated with NCDs (Hawkes, 2006; Leite et al., 2018; Luiten et al., 2016; Moubarac et al., 2013; Hyseni et al., 2017; Popkin, 2014; Popkin and Reardon, 2018; Poti et al., 2017; Toiba et al., 2015).**

At the same time, there have been positive impacts, such as improved food safety and hygiene (Fuchs et al., 2011), greater convenience (by reducing the amount of food-preparation time for women) and better availability of nutritious foods, including animal-source foods, such as dairy and eggs. Improvements have also been observed in the quality of diets (Burns et al., 2004; Hawkes, 2006; Laraia et al., 2004; Popkin and Reardon, 2018).

The cost of food has decreased in some contexts and increased in others (Latham and Moffat, 2007; Larsen and Gilliland, 2009; Liese et al., 2007; Goldman et al., 1999; Reardon et al., 2009), but there has been a visible increase in the inequality of access to food. The dietary and nutritional consequences appear to depend very much on context (regional, cultural, level of development/national GDP, urban or rural). Currently, we know little about the extent to which this transformation of the food retail environment has impacted shopping practices and diets, specifically those of the urban poor in Asia.

## INNOVATIVE APPROACHES TO UNDERSTANDING THE FOOD SAFETY – NUTRITION DILEMMA

These issues are often approached from a consumer-led “rational choice” perspective, which views food consumption as the outcome of conscious and deliberate choices by individual buyers. A novel approach to the transition of food systems is to view household food-shopping practices and consumption – and, hence, dietary intake – as inherent activities that make up everyday life. This approach combines dietary research with a social practice-oriented perspective by including the habitual nature of food consumption (Warde and Southerton, 2012) and assessing how this is affected in a transforming food retail environment. Dietary intake is core to the design of such a framework and is assessed as a dependent variable, first to food-shopping practices and then food retail provisioning and urban lifestyle. Food-shopping practices are measured as an independent variable to dietary intake, but assessed as a dependent variable in relation to food retail provisioning and lifestyle. Food retail provisioning and lifestyle are both considered independent variables.

## Viet Nam case study: Hanoi

Viet Nam's Doi Moi economic reform<sup>1</sup> in the late 1980s and 1990s brought about significant changes in lifestyle and dietary patterns, including lower consumption of rice and traditional foods, fresh fruits and vegetables in favour of more protein- and fat-containing foods, such as meat and processed foods (Petracchi and Ha, 1999; Nguyen and Pham, 2008; Thang and Popkin, 2004).

Hanoi authorities subsequently developed a master plan to transform the city into a modern metropolis (MoPI, 2011; MoIT, 2012), including the transformation of the local food environment through retail modernization that promoted supermarket development to gradually replace traditional food retail outlets (Moustier, 2006; MoIT, 2009; Dries, 2013; Wertheim-Heck and Spaargaren, 2016). This policy was supported by serious public health concerns over the agrochemical and bacteriological safety of the most commonly consumed fresh foods, as supermarkets implement private food-safety management systems and maintain food hygiene standards, unlike traditional food markets. Moreover, by national regulation, all vegetables entering modern retail outlets are required to carry official Vietnamese certificates attesting to their production in accordance with national safety regulations (Wertheim-Heck et al., 2014).

Ensuring healthy and safe food access, together with food and nutrition security, in low-income urban groups is a critical challenge facing Vietnamese policymakers (Wertheim-Heck et al., 2015). Consumers and policymakers alike have to deal with the competing priorities of food safety and nutrition. Food safety is being prioritized, however, as evident by the recent transformations in urban food-safety governance towards "supermarketization" as a remedy for recurrent food-safety incidents – at the cost of the forced closure of traditional wet markets.

**Around one-third of Hanoi's population lives on less than USD 5 per person per day and 44 percent of household income is spent on food. These households heavily rely on wet markets to access fresh and nutritious produce.**

The forced closure of these markets is designed to channel consumers into supermarkets and convenience stores. An important element of Hanoi's urban planning is to transform traditional markets into shopping malls, with the aim of reducing

the 67 permanent inner-city markets (as of 2010) to just 14 by 2020 (MoIT, 2009). In the meantime, supermarket development is spiralling, from just 2 in 2000, to 24 in 2010 and 800 in 2017, to an estimated 1 000 in 2025 (Wertheim-Heck et al., 2015).

The increased cost of food and the dietary changes associated with supermarkets and exposure to ultra-processed foods (Monteiro et al., 2016) put food and nutritional security at risk. Shopping at supermarkets is associated with a rise in the consumption of ultra-processed foods and increased rates of obesity and NCDs, whereas wet-market shopping is associated with increased vegetable consumption (Kimenju et al., 2015; Banwell et al., 2013; Kelly et al., 2014).

Vegetables are critical to good health and nutrition and are an integral part of the traditional Vietnamese diet. They are affordable and easily accessible. Yet, on average, Vietnamese people do not consume sufficient quantities to meet WHO recommendations (Bui et al., 2016). Unfortunately, these and other fresh foods are among those raising most concern by government and consumers alike in terms of food safety. The actual public health risk is low, however, and there is little evidence from food-safety and bio-contaminant analysis to date to support the contention that such foods sold in wet markets are unsafe. Consequently, the planned closure of almost all formal markets, which looks to be based on fear alone, may be unnecessary.

The challenge is to identify strategies and opportunities to prevent potentially undesirable nutritional effects on the urban poor. This article addresses the impact of current policies on their diet quality. We make practical recommendations that may assist policymakers in preventing negative impacts on diet quality, while recognizing the urgent need for a more equitable and nutritious urban food environment in Viet Nam.

### Complimentary value considerations of open-air markets

Open-air markets offer multi-dimensional value to consumers beyond just providing access to food. These values contribute to the well-being and empowerment of local communities and are:

- *Cultural*: for example, flexible shopping practices (preferred shopping).
- *Social*: for example, places to meet friends and interact with neighbours.
- *Financial*: for example, supporting local small business and livelihoods related to food.
- *Tourism*: for example, food tours for visitors interested in experiencing traditional foods and markets.
- *Livelihoods*: for example, local communities relying on vendor-related activities for income.

<sup>1</sup> Economic reforms introduced in Viet Nam in 1986 to create a "socialist-oriented market economy".

## Methods

A study was conducted to assess consumer food-access capabilities, by mapping Hanoi's food retail environment against the food-shopping practices, preferences and dietary intake of 400 households in Hanoi, with a focus on women who were primarily responsible for food provisioning and were of reproductive age. The sample size calculation was based on being able to detect a difference in micronutrient intake (mg of iron from previous research) of women across study strata, with a confidence interval of 95 percent, a statistical power of 80 percent and a design effect of 2 (Gorstein, 2007).


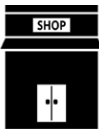

Households were randomly selected using a door-to-door sampling strategy from four strata that were characterized by their proximity to supermarkets and wet markets (Figure 1), the two retail options that are the focus of Viet Nam's retail modernization policy (MoIT, 2009). The following inclusion criteria were applied: gender (women), age (childbearing age, born after 1966), residency (at least two years at their current address), household size (excluding single-person households), income (per capita daily income of less than USD 5.50) and a role in household food acquisition (primarily responsible).

Five methods were used to collect data: (1) a food retail-outlet census, (2) a food-shopping practices survey, (3) price data-collection, (4) quantitative 24-hour dietary recall and (5) in-depth multigenerational interviews with a subset of women to gain more in-depth understanding of whether the transformation of the city's food system was impacting their food choices and, if so, how.

## WHAT IS HAPPENING TO URBAN DIETS?

The study found consumers were aware that nutrition was important, with 83 percent and 87 percent stating that under- and over-nutrition were serious issues, respectively, and 81 saying that diet diversity was important. Nutritional knowledge was limited and the understanding of nutrition concepts was basic. On average, 81 percent of women were able to correctly recall the purpose of the Vietnamese food pyramid, but could only correctly identify two out of the eight food groups.

**Figure 1.** THE FOODS MOST COMMONLY PURCHASED FROM DIFFERENT TYPES OF RETAIL OUTLETS

 <b>MODERN RETAIL</b> Hyper-/supermarket	 <b>CONVENIENCE</b> Chain/"mom and pop" stores	 <b>TRADITIONAL RETAIL</b> Wet/street market
Dairy Snacks Ready-to-eat foods Sweets & cookies	Rice, cereals and starch Dairy Snacks Ready-to-eat foods Sweets & cookies Oils and fats Spices	Fish Meat Eggs Vegetables Fruits Legumes Nuts & seeds Insects

Overall, the diet quality of the urban poor was minimal. Women only consumed half of their daily nutrient requirements and 25 percent did not reach minimum dietary diversity (FAO and FHI 360, 2016). Foods purchased from traditional retail outlets (wet markets and street vendors) were mostly fresh, unprocessed foods that maintained a healthy diet and contributed most to daily nutrient intake: 70 percent protein, 56 percent energy, around 80 percent vitamin A and C, and about 70 percent calcium, iron and zinc.

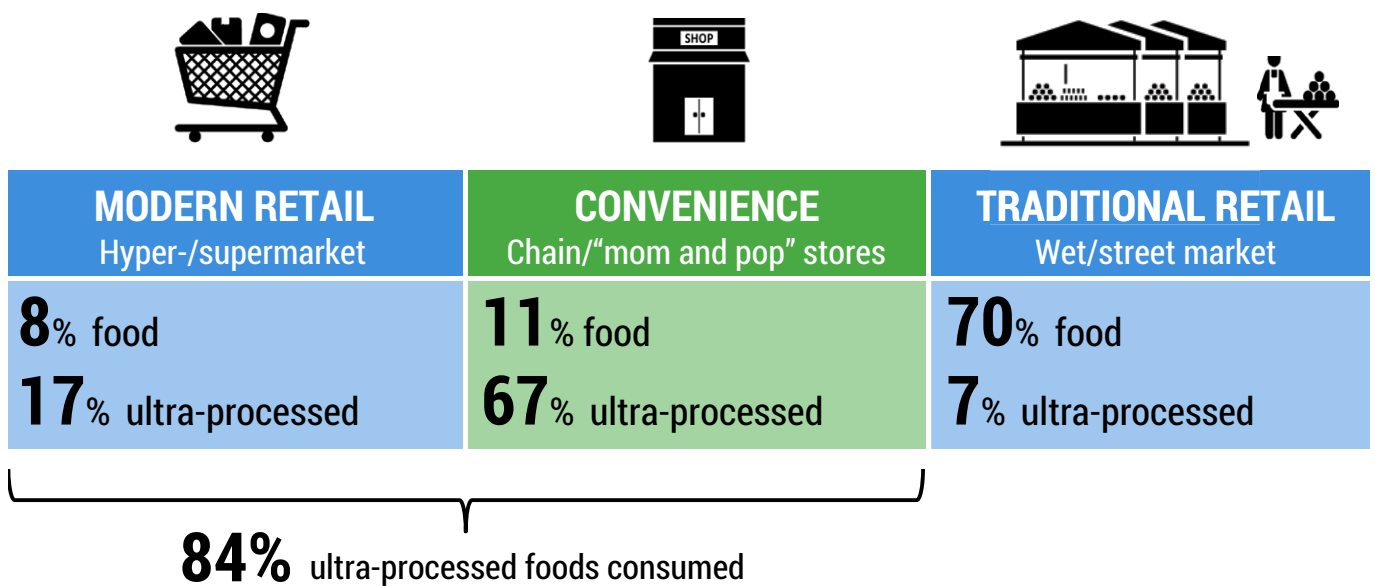
Modern retail outlets were largely used only to source ultra-processed foods, such as instant noodles and porridge, sweetened beverages and packaged confectionery (such as biscuits, cakes, buns) that contained high quantities of salt, sugar and fat. Ultra-processed food consumption was still quite low, with a mean daily consumption of 60g, accounting for only 6 percent of daily energy intake. Convenience stores and supermarkets were the main sources of the ultra-processed foods, with 68 percent and 17 percent of the mean daily quantity consumed acquired from them, respectively.

People were found to not be opposed to supermarkets. Although they considered them expensive (85 percent, compared with just 1 percent who found wet markets expensive) and too time-consuming (56 percent compared with 3 percent for wet markets), they also deemed shopping in supermarkets interesting (72 percent, though less than the 86 percent for wet markets) and food safe (68 percent compared with 60 percent for wet markets).

Viet Nam’s policy has been effective in providing safe vegetable outlets in lower-demographic areas where wet markets are no longer easily accessible. This has largely been in the form of convenience stores, which were more abundantly and equally distributed than supermarkets and offered a variety of safe and fresh vegetables (Uyen et al., 2017). However, there was still limited consumer trust in terms of safety guarantees, the prices were slightly more expensive than in the wet markets and opening hours did not match preferred shopping times. Consequently, the urban poor were largely excluded.

Nearly all (90 percent) of households still preferred to shop at traditional (in)formal markets (wet markets and street markets), with 70 percent of their diet sourced from these outlets. The study revealed that supermarkets and convenience stores offered a higher percentage and wider range of ultra-processed foods than traditional open-air markets (65 percent and 25 percent, respectively) and that stores were frequented mainly to purchase and consume these less healthy foods. An overwhelming 99 percent of the urban poor did not use supermarkets or convenience stores for primary grocery shopping, even when a supermarket was located close to home (45 percent). In 83 percent of cases, when a wet market was beyond walking distance, consumers chose informal street markets rather than modern retail outlets. Unfortunately, street vending is unregulated and more unhygienic than formalized wet markets, so potentially carries greater food-safety risk.

**Figure 2.** PERCENTAGE OF TOTAL FOOD INTAKE AND ULTRA-PROCESSED FOOD INTAKE PER RETAIL OUTLET TYPE



The main drivers of continued shopping in traditional (in) formal markets, even when far from home, was largely driven by preferred shopping practices, including the diversity and perceived freshness of products offered, convenient location, overall enjoyment of open-air market shopping, the availability of healthy foods, lower food prices and the perception of trusted food safety. Social considerations were also raised, including habitual nature and concerns about maintaining the culture and tradition associated with market shopping, and the influence on cooking of traditional dishes. Women explained that while their generation's dietary preferences had not yet shifted, they were starting to adapt their cooking practices to include new westernized dishes requested by their children in an attempt to appease their taste preferences, as food was one of few affordable treats, and to encourage them to eat. Amid food shortages and stunting, their reasoning was that children would eat more when they liked the food and would grow better when they ate more.

Lastly, more than 40 percent of household income was spent on in-home food consumption. Vast differences in retail-outlet food prices were observed, particularly between traditional (in)formal markets and food-safety-regulated modern and hybrid outlets. Supermarkets were, on average, 35 percent more expensive, but still considered somewhat affordable. Furthermore, over 85 percent of households reported that the price of formal food-safety-regulated food items was too high and, when sold through specialized retail outlets, also unaffordable.

The in-depth, multigenerational, qualitative interviews gave insights into women's perceptions and opinions on how the transforming food environment was impacting their and their family's diet. Women reported that they did not feel empowered in voicing their needs and concerns when it came to coping with food-safety and nutrition issues in everyday life. Consumers understood the government's rationalization that traditional wet markets were being closed due to hygiene and food-safety concerns and understood that food retail needed to modernize. However, collectively, they still wanted to keep wet markets as part of their daily food environment and expressed concern about the current, rather one-dimensional direction of food retail. They expressed ideas about more hybrid alternatives that involved co-sharing of responsibility in managing food safety at the markets.

## SO, WHAT DOES IT ALL MEAN?

Nutrition and food-safety issues coexist and compete when it comes to food-policy governance in Hanoi. Traditional open-air markets remain crucial to maintaining a minimal level of diet quality for the urban poor, although they do not provide formal food-safety guarantees. No studies have yet been done to compare food-safety measures between foods with and without formal safety guarantees, however, it is generally assumed – reinforced by the Government – that formal guarantees mean safer food. Modern retail outlets provide formal food-safety guarantees, but the urban poor often cannot or do not access or use them as their primary source of food, even when traditional markets are beyond walking distance. When formal markets are not available, consumers turn to informal street markets, which are unregulated and pose even higher food-safety risks. Supermarkets are mostly used for purchasing ultra-processed foods, leading to unhealthy diets and jeopardizing the future dietary quality with the urban poor (Kelly et al., 2014).

Viet Nam has made significant progress in decreasing its rates of undernutrition, however, obesity and the prevalence of NCDs is increasing – particularly in the urban areas – putting pressure on public health systems (Development Initiatives, 2018; GBD, 2017). The trend of sourcing ultra-processed foods mainly from modern and convenience retail outlets could suggest a risk to diet quality and nutrition if the modernization policy is completely effective in changing the primary food environment, so that it becomes wholly dependent on supermarkets. It could (i) drive people towards unhealthier diets, with greater consumption of ultra-processed foods and less consumption of fresh foods, which may lead to a rise in NCDs (Moubarac et al., 2013), and/or (ii) increase food insecurity due to the additional spending required to acquire the same fresh, unprocessed foods in modern retail outlets than from current, traditional markets in order to maintain diet quality.

Although the often unhygienic conditions and lack of adequate control mechanisms of traditional open-air markets are not contested, the limits of pushing modernization and banning traditional retail structures without inclusive consultation of the urban poor is risking their food and nutrition security.

### What the people think – the active participation of consumers

A short documentary, entitled *Retail Diversity for Dietary Diversity: Food Safety and Nutrition for the Urban Poor*, was developed to give agency to the voice of the urban poor and give policymakers insight into their daily food realities (Fresh Studio, 2018). It can be viewed here: <https://www.youtube.com/watch?v=3ZiZ2xSvffY&feature=youtu.be>.

## POLICY RECOMMENDATIONS

Policy must focus on how to mitigate the undesirable economic access barriers of food-safety certification and “supermarketization” for the urban poor, so as not to degrade diet quality. Under current policy, supermarkets are expected to function increasingly as the primary food source. Consumer awareness campaigns are, thus, recommended to improve consumer trust in the food-safety guarantees provided by these outlets and to promote their use in the absence of wet markets rather than a reversion to informal street markets. These same campaigns should also educate consumers about the dietary and health risks associated with increased consumption of ultra-processed foods and emphasize the importance of the continued consumption of fresh foods.

**However, policymakers must acknowledge that wet markets are crucial to maintaining quality of diet of the urban poor. We would, therefore, recommend that food-safety policies be revised to recognize the importance of these types of retail outlet for diet quality and be designed to embrace and include retail-outlet diversity in urban food systems.**

### Considerations for testing interventions to improve food safety in wet markets

- Co-shared responsibility with local actors at each location.
- Blockchain to validate a Participatory Guarantee System (PGS)-type system (FAO, 2018)
- Technologies to improve traceability from production (including smallholder farmers)
- Improved hygiene, food handling and preparation awareness of wet-market vendors and consumers
- Active participation of populations whose diets depend on wet markets

Insufficient attention has been paid to identifying innovative policies and interventions to improve wet-market vendor hygiene and food-handling practices that guarantee food safety, such as community-based guarantee systems. Low-cost local food-safety control mechanisms and policy to renovate and upgrade existing informal fresh food outlets with deficient food-safety standards must be established and offered as an alternative to closure.

Evidence demonstrating that these retail outlets can provide equivalent food safety to supermarkets could rebuild government and consumer trust in these outlets. The process should include the active consultation and participation of representatives from all socioeconomic strata, households and local authorities.

To ensure that public authorities meet their dual mandate of improved access to diverse, safe and nutritious foods for the urban poor, current one-dimensional, ideal-type policies on food safety and public health need to become more diverse and participatory (Wertheim-Heck, 2018).

Equitable urban food systems that empower all residents to access nutritious and safe food for a healthy diet require food-safety policies that recognize the importance of versatile and diverse food retail environments. There is an opportunity for the co-creation of an equitable and nutritious food environment with the active participation and involvement of (vulnerable) consumer groups, food producers, retailers and policymakers. Such an approach would generate new insights into the cultural, social and economic dimensions of food practices, habits, preferences and consumer needs.

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