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Transnational corporations, food systems and their impacts on diets in developing countries*



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WHAT ARE THE ISSUES?

In what is traditionally known as the nutrition transition (Popkin, 2006), rising incomes in low income countries lead diets to progress from reliance on starchy staples to include more fruit and vegetables, animal products and vegetable oils, but there is also a tendency towards an increase in intake of processed, energy dense, non-traditional foods which are often high in sugar, salt and harmful fatty acids and poor in micronutrients. The reduced prevalence of under-nutrition and the consumption of a more diverse diet have been observed in most of the developing world over the past 20 years, but overweight, obesity and diet-related non-communicable diseases are a more recent phenomenon which has spread from the developed world to growing segments of poorer nations; and today 2 billion people globally suffer micro-nutrient deficiencies. (SOFA, 2013; IFPRI, 2015).

At the same time, rapid globalization has occurred in the food industry. The two main components of globalization, international trade and, quantitatively more importantly, foreign direct investment (FDI) by food manufacturers have both grown sharply over the past 20-30 years (for references see next section). Multinational retailers have followed multinational food manufacturers, soft drink companies, and fast food chains into food and drink sectors in virtually all countries and have introduced the types of supply-chain management previously seen only in the developed world, such as tight vertical coordination, centralized purchasing and distribution, private standards, product differentiation, and sophisticated marketing. Domestic firms, driven by competition and learning from new market entrants, have followed suit (Traill *et al.*, 2014).

The clear correlation between dietary change and industrial structural change has led to a common view that there is a causal link between globalization and the increased intake of

highly processed, energy dense, convenience foods that are in turn causing obesity and non-communicable diseases, most notably diabetes. This view may lead to demands for influencing the nature of globalization or the behavior of global firms (e.g. Hawkes, 2006).

But the move towards more western-style diets in the developing world may also be seen as demand driven, changes that would have occurred even in the absence of globalization. According to this view growing incomes, urbanization and female labour-force participation (among others) have led to a demand for convenience processed and fast food and eating out. The food industry has simply responded to a market need. From an analytical perspective, it is difficult to distinguish to what extent observed changes in food consumption are supply or demand driven.

The objective in this technical note is to look at transnational corporations in the food industries and study the conceptual issues in trying to assess causation for diet change and to examine the (limited) empirical evidence supporting alternative views.

GLOBALIZATION AND THE MODERNIZATION OF FOOD SYSTEMS

Most interest in changing food systems has focused around supermarkets and their role in redefining the organization of supply chains and, ultimately, consumption. The rapid expansion of supermarkets in developing countries has been widely written about by Reardon and colleagues in a series of articles (e.g. Reardon and Berdegue, 2002; Reardon and Swinnen, 2004; Reardon *et al.*, 2004; Neven *et al.*, 2004; Neven *et al.*, 2009). The line of argument is that supermarkets are no longer places where only rich people shop: they have spread from the wealthy suburbs of major cities to poorer areas and smaller towns. This

has happened in response to a number of forces, many of them interconnected: rising incomes (also associated with higher ownership of consumer durables such as refrigerators and cars, which facilitate supermarket shopping); urbanization; greater female participation in the labour force (increased opportunity cost of time); and the emulation of Western culture, spurred on by the globalization of media and advertising (Traill, 2006).

In Latin America, supermarkets deliver 50–60 percent of retail food sales. This trend is mirrored in southeast Asia, Eastern Europe, and Central Europe, followed by Africa, which is led by South Africa, where a “spectacular” rise of supermarkets has occurred since 1994 (Reardon *et al.*, 2004, Neven and Reardon, 2004). The continuing spread of multinational food and soft drink manufacturers and fast food franchises has also been well charted. (e.g. Bruinsma, 2003, UNCTAD, 2009, World Bank, 2008). Global inflows of foreign direct investment (FDI) in the food sector have increased from less than \$10 billion in 1992 to over \$40 billion in 2007 (current US dollars based on UNCTAD definitions, reported in FAO, 2016). Wilkinson, 2008, reports that US investments in Mexico have concentrated on convenience and secondary processed foods, especially snacks, beverages, instant coffee, mayonnaise, and breakfast cereals. However, as pointed out by Regmi and Gehlhar, 2005, such products are amenable to foreign investment because they are not location specific. Whereas primary processed products, such as fresh or frozen meat, frozen and canned fruit and vegetables, and dry milk powder, are closely associated with their production location and therefore require exportation to reach international locations, secondary processed products are free from such constraints and can avoid the transaction costs associated with trade. Global fast food chains and soft drink companies have also been blamed for unhealthy eating habits in developing countries. Pingali and Khwaja, 2004, charted the growth of McDonald’s restaurants from 951 stores in the Asia Pacific region in 1987 to 7 135 in 2002; since then, the numbers have continued to rise, though more slowly. Pepsico, another global food and beverage corporation trebled its sales outside North America and Mexico between 2000 and 2007 (Christian and Gereffi, 2010). Of potentially far greater importance for diets than direct sales of transnational corporations are the domestic food manufacturers, including fast food and soft drink firms, that have sprung up to imitate global brands at much lower prices, thereby generating much higher sales (Vepa, 2004). International trade increases the availability of foods and provides a further competitive impetus for the modernization of domestic competitors. Between 1992 and 2009, the total trade in food and agricultural products more than doubled, from \$40 billion per annum to \$80 billion (UN Comtrade database). The share of processed food in food and agricultural exports grew from 54 to 69 percent for high-income countries and from 49 to 67 percent for Asia between the 1970s and 2000s (Sandri *et al.*, 2007). The main impetus for this was the declining cost of moving products around the world, driven largely by technological developments in transport (notably containerization), information and communication technology advances, and reductions in trade barriers (Anderson, 2010).

Global investment liberalization has been an important force for the spread of multinational enterprises at all stages of the food chain, for example a statistical study by Traill (2006) found openness to inward FDI to be an important stimulus to the spread of

supermarkets in middle and low income countries. More commonly the impact of globalization is assessed on the basis of correlations between liberalization and sales/consumption in case studies (e.g. Neven, 2016 with respect to the liberalization of the Zambian dairy sector or Hawkes, 2006 with respect to Mexican liberalization as part of NAFTA). Notably Mexico abolished many restrictions on foreign investment in the Mexican Foreign Investment Act, 1993 (Hawkes, 2006) and between that year and 1999 American food processing investment in Mexico more than doubled to \$5.3b. Sales from US affiliates at \$12.3b were more than four times processed food exports (of \$2.8b). Likewise liberalization stimulated investment by American owned retail chains (Walmart de Mexico is now the largest retailer) (Hawkes, 2006).

Before moving on to examine the evidence for a dietary impact of food system change, a word of caution is appropriate. Discussion such as the above suggests a general tendency for food system organization in developing countries to progress to the modern from the traditional. Modern suggests industrial food manufacturers buying raw materials from commercial farmers and selling processed foods (often imported) to modern supermarkets (who may also sell non processed foods such as fruit and vegetables, dairy products and fresh meat). In traditional systems, traders buy from farmers and sell to consumers (and other traders) through local wet markets. Products are largely unprocessed. Gomez and Ricketts, 2013, warn this is an over-simplification. Large sectors of developing country food systems comprise what they call modern to traditional and traditional to modern organization. In the former, domestic and multinational food manufacturers sell processed foods through a network of small, traditional ‘mom and pop’ stores, in local as well as urban areas (thus potentially widening the distribution network for processed products). Gomez and Ricketts, 2013, claim that in India over half of processed foods are sold through such stores and in Brazil, over 20 percent. In the traditional to modern form of organization, supermarkets and food manufacturers source their produce from small farmers (often organised into cooperatives) and traders. This tends to occur with higher value fruit and vegetables and livestock products and largely benefits better educated and wealthier suppliers (Neven and Reardon, 2009). While it may be argued that these are transitional states, they are quantitatively sufficiently important and long term, particularly the former, to warrant recognition.

IMPACTS OF CHANGING FOOD SYSTEMS ON DIETS

In this section we develop some hypotheses for the ways modern food systems can be expected to have a direct causal impact on diets and examine the limited empirical evidence supporting them.

1. Modern food systems lower the price of processed convenience foods relative to traditional staples and fresh fruit and vegetables. Price and convenience together increase purchases of processed foods, which tend to be energy dense, hence accelerating the tendency to overweight and obesity and reducing the intake of micro-nutrients (whose levels are lower in many processed and fast foods and soft drinks). Processed foods also tend to have high levels of salt, sugar, saturated and trans-fatty acids. However, cheaper calories may be beneficial to the poor and under-nourished provided they are nutritionally balanced. Modern food

systems make more foods readily available than traditional food markets (e.g. chilled foods such as dairy products — where refrigeration is important — processed meats, a greater variety of processed convenience foods, snack foods, fast foods, soft drinks). They also provide year-round availability, notably for fruit and vegetables. The nutritional consequences of the implicit increased consumption of these products is ambiguous: increased intake of dairy products and meats improve micronutrient intake and diet quality but higher consumption of many processed and convenience foods reduces intake of micronutrients and reduce diet quality.

2. Modern manufacturers, fast and soft drink firms and supermarkets employ sophisticated marketing, often targeted at children, to encourage a preference for western foods. There may also be an innate interest and drive among consumers to explore new foods and this is encouraged and facilitated by modern food systems. Once more, to the extent that these foods are energy dense, lacking in micronutrients, and high in salt, sugar and harmful fatty acids, this would be detrimental to diet quality. It may also be argued that such foods are tasty and habit forming/addictive, particularly those with high levels of salt or sugar, so exploration of new foods may lead to self-perpetuating consumption.
3. Modern food systems enhance food safety and quality through upgrading and enforcing quality and safety standards. Trust in the food system is known to be an important determinant of consumer demand and hence would promote consumption of the foods supermarkets sell.
4. Modern food systems employ supply chain management techniques and logistics control which reduce food losses and waste in post-harvest supply chains, particularly for fruit and vegetables. Food losses and waste are a substantial problem in both developing and developed country food systems which clearly impact on diet quality through their impact on food prices and availability.

Concerning their impact on prices, limited evidence suggests that supermarkets (and convenience stores) have reduced the prices of packaged foods relative to fresh produce, particularly in the early stages of supermarket penetration in a country. A study in Brazil found supermarket prices for packaged foods to be as much as 40 percent lower than prices in traditional outlets. By contrast, Gomez and Ricketts, 2013, quote a number of studies that demonstrate fruit and vegetable prices are higher in supermarkets, even after correcting for product characteristics. For this reason, low-income consumers in particular, tend to purchase such products from traditional markets.

Rischke *et al.*, 2015, use instrumental variable approaches¹ to study the extent to which supermarket shopping leads to substitution to processed from unprocessed foods in small towns in Kenya (where they find processed food prices to be 5-10 percent lower). They find that a 10 percent increase in expenditure in supermarkets

¹ An approach which corrects for endogeneity, a statistical problem resulting from the simultaneous choice of where to buy, what to buy and what price to pay.

(which is the average difference in the share of purchases from supermarkets between similar towns with and without a supermarket) leads to about a 3.5 percent increase in processed food purchases and higher average total calorie intake by up to 10 percent (250 calories) holding expenditure fixed. The main determinant of supermarket use was ease of access (measured as distance to the nearest supermarket). Similar results were found in Guatemala (Asfaw, 2008).

On one hand the shift to processed foods might be considered relatively small, on the other the increased calorie intake is substantial. The study was conducted in rural areas of Kenya with relatively low levels of supermarket penetration, but in middle income countries and urban areas of lower income countries, where supermarket purchases may comprise half of all food purchases, the issues become important (though caution must be taken against the dangers of extrapolating too literally from a small study in one region to much different circumstances in others). Indeed, Umberger *et al.*, 2015, also use appropriate modern statistical methods to examine the impact of supermarket use in urban Indonesia where the average supermarket expenditure share is 19 percent. They attempt to measure the impact on variables such as Body Mass Index (BMI), or the prevalence of overweight/obesity in the population; these are notoriously hard to model and explain because they are the cumulative outcome of years of energy intake and output balance/imbalance and the factors that determine these. Nevertheless, their finding that supermarket use had no discernable impact on adult BMI is cautionary. They did find some evidence that supermarket use leads to a somewhat higher likelihood of overweight and obesity in higher income urban households.

It should be remembered that consumption of processed foods is not only through supermarkets. The modern to traditional food chains discussed above whereby food manufacturers sell processed foods through 'mom and pop' stores enable poorer and more remote consumers to access such products with the potential positive and negative consequences already described: the ability to take advantage of the opportunity to consume cheap, safe and reliably available energy, even off-season; but the possible negative impacts on salt, sugar and micronutrient intakes.

Concerning marketing and the transformation of preferences towards western-style foods, empirical evidence is absent, though there is circumstantial evidence in support of the hypothesis. Hawkes, 2006, defined marketing as aiming to develop in consumers the habit of drinking or eating the product regularly. To this end she highlights ways in which children and young adults have been particular targets of marketing that aims to change consumption habits over the long term (Hawkes, 2002). Methods include targeted television and web advertising, sports and event sponsorship, products targeted at local tastes, and special offers/price promotions for market growth (Hawkes, 2002; Pingali and Khawaja, 2004).

Thow and Snowden, 2010, relate the cautionary tale of how exports of unhealthy bi-products of sheep ("mutton-flaps" from New Zealand) and poultry ("turkey-tails" from the US) found their way into the hearts of Fijians and Samoans before imports were

eventually banned. This of course demonstrates how prices and preferences can be inter-twined—in these cases low prices rather than advertising led to the initial surge in consumption which was then sustained because people found themselves liking the taste. In the jargon of economics, low prices caused first a shift along the demand curve (the traditional response) followed by a shift in the demand curve (which is consequently irreversible).

We must conclude that while empirical evidence is extremely limited, the hypotheses are generally supported by circumstantial evidence. However further quantitative assessment of *how much* the emergence of modern food systems are causing dietary change rather than responding to a consumer demand and thereby merely facilitating dietary change are much called for.

CONCLUSIONS

Modern food systems employing sophisticated supply chain management methods previously seen only in the developed world, such as tight vertical coordination, centralized purchasing and distribution, private standards, product differentiation, and sophisticated marketing have emerged throughout the world in the past 20 years, though countries. However there continue to coexist with modern food systems, a variety of other organizational systems including traditional, modern to traditional and traditional to modern food chains. In principle each of these has different implications for food consumption and nutrition, but many are negative as they lead to higher consumption of processed foods which tend to be energy dense and are high in sugar, salt, saturated and trans-fats. They are often also low in micro-nutrients. Implications for consumption of fruit and vegetables are less clear because the majority of consumers in low and middle income countries purchase these products from traditional markets (where they are cheaper), though supermarkets provide some (often higher income) consumers with the opportunity to buy fruit and vegetables off-season. Middle class consumers can also safely access dairy products that would otherwise be unavailable.

Poor consumers in low-income developing countries are less likely to shop in supermarkets, often for reasons of ease of access (supermarkets are likely to locate in richer areas and poor consumers are unlikely to have their own cars). Even poor consumers do however have access to processed foods via their sale through 'Mom and Pop' stores in cities and more remote rural areas.

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