

**Globalization, Health and the Nutrition Transition: How Global TNCs are
Changing Local Food Consumption Patterns**

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Abstract

Food consumption patterns around the world are changing. In general, individuals around the globe are consuming more edible oils and sugars than they were twenty years ago. What has lead to this nutrition transition? Scholars have identified a range of mechanisms associated with the transition, but nearly all are related to the growing influence of transnational corporations on the global food system. These TNCs are the lead actors in most global food production systems, dictating what is produced, how it is processed, where it is sold and the desirability of food products to global consumers. Looking at these TNCs through the lens of global value chain analysis can begin to shed light on the global and local interactions that are contributing to changing food consumption patterns. These TNCs have come to dominate the global food value chain by operating globally to promote efficiency as well as locally to take advantage of regional preferences. A global value chain perspective highlights the role of TNCs in increasing the availability, affordability and desirability of diets higher in fat and sugar in Malaysia. These diets are scientifically linked to a higher risk for noncommunicable diseases such as obesity, diabetes and cardiovascular disease and Malaysia has experienced rising rates of noncommunicable disease. Because developing nations do not have the financial or medical capacity to deal with these rising rates of noncommunicable disease, the nutrition transition could lead to a global public health crisis. To avoid this kind of crisis, future GVC research should identify intervention points in global food value chains that can reverse this trend and encourage global TNCs to positively influence local diets in the future.

Nutrition Transition Background

Food consumption patterns are changing around the globe. Consumption of sugar and edible oils has risen significantly in all developing regions around the world (PSD Online 2011). In Southeast Asia alone, annual sugar consumption doubled between 1990 and 2010 while annual palm oil consumption more than quadrupled in that same time period (PSD Online 2011). Generally, these changing consumption patterns are termed the nutrition transition. Specifically, the nutrition transition is defined as an “increased reliance on a narrow base of staple grains, increased consumption of meat and meat products, edible oil, salt and sugar” (Kennedy, 9). The nutrition transition also refers to global shifts in food culture norms. An FAO publication defines the nutrition transition as “increased consumption of brand-name processed and store-bought foods, an increased number of meals eaten outside the home and changing consumer behaviors driven by the appeal of new foods available” (Bruinsma, 9). The Southeast Asia statistics mentioned above are not outliers. Broader studies have confirmed that increases in the percentage of dietary energy derived from fat directly correlates to increases in GDP (Drewnowski 2010, 33). A study in five major developing countries (China, India, Mexico, South Africa and the Philippines) confirmed that percentage of dietary energy derived from fat has steadily increased over the past forty years (FAO Publication, 5). Worldwide, per capita consumption of caloric sweeteners has risen by nearly 100kcal per day between 1960 and 2000 (Popkin 2003, 52).

These higher-fat, higher-sugar diets are linked to an increased risk for noncommunicable disease. Although diet is clearly not the only component in the development of chronic disease, it does play an important role. There is clear scientific evidence that saturated or trans fats (which are a major component of edible processed oils) can inhibit a part of the metabolism that is responsible for breaking down fat in the body. This can lead to the accumulation of fat in the bloodstream. If these fat deposits start to block blood flow through crucial arteries, an individual is at high risk for a heart attack (Hu 2001, 7). Additionally, a high intake of trans fats has been linked to an increased risk of weight gain, particularly in the form of abdominal fat (Astrup 2008, 48). High sugar diets are equally problematic. When an individual consumes sugar, their body produces insulin to help cells break down the sugar molecules for energy. If an individual consumes large amounts of sugar on a daily basis, insulin will be constantly produced. If insulin levels are continuously heightened over an extensive period of time, cells may stop responding to the insulin signal. If this happens, cells cannot process sugar properly and an individual would be diagnosed with diabetes (Astrup 2008, 45). Genetic factors, an individual’s activity level and other lifestyle habits also contribute to the development of noncommunicable diseases, but the relationship between disease and a high-fat, high-sugar diet cannot be overlooked.

The possible connection between high-fat, high-sugar diets and disease is exemplified when examining the rising rates of noncommunicable disease around the world. Historically, most health problems in developing countries came from communicable diseases such as malaria or tuberculosis. These diseases are still prevalent in many areas, yet developing countries are also facing the growing threat of noncommunicable disease. For example, Malaysia, which will be used as a case study later in this paper, has seen a dramatic rise in instances of obesity, diabetes and heart disease. Between 1996 and 2006, the percent of overweight adults in Malaysia rose from 16.6% to 29.1% (Khambalia 2010, 403). Obesity rates rose from just 4.4% of the population in 1996 to 14% in 2006 (Khambalia 2010, 403). Malaysia also saw an increase in the prevalence of diabetes from 6.3% in 1986 to nearly 15% in 2006 (Malaysia Health Report 2008, 59). At the same time, Malaysia has seen dramatic increases in consumption of palm oil and sugars. Although it is difficult to prove complete causality between these two phenomena, it is

highly likely that changing diets have contributed to rising rates of noncommunicable disease in Malaysia.

Because changing diets are associated with such negative health consequences, several scholars are interested in identifying a reason for the nutrition transition. A variety of scholars agree that the processes of globalization are at the core of the changes. However, there tends to be disagreement when scholars are forced to specifically define these vague processes of globalization. One contingent of scholars argues that trade liberalization policies are the primary cause of the nutrition transition (Lang 1999, McMichael 2001, Kennedy 2004, Popkin 2006, Rayner 2007, Thow 2009). For example, Popkin asserts that trade liberalization policies such as reduction of import tariffs have allowed countries to import large amounts of low-cost edible vegetable oils. Popkin argues that higher availability and lower costs have resulted in increased consumption of edible oils (Popkin 2006, 9). Another group of scholars emphasizes structural factors such as supermarket expansion and foreign direct investment into food manufacturing plants (Boiling 2001, Ghézan 2002, Timmer 2003, Hawkes 2006, Reardon 2009). Reardon claims that supermarkets contribute to changing consumption patterns by increasing the availability of cheap, processed foods that are easy and quick to consume (Reardon 2009). Hawkes also identifies the importance of FDI food processing capacity in developing countries. Processing and selling foods within the same market can lower transaction costs and even spur local companies to adopt global processing techniques. Lowered costs and greater competition increases availability and drives down the price of processed foods, encouraging greater consumption (Hawkes 2006). The third cohort of scholars argues that cultural shifts and the effect of global food advertising are at the core of changing food consumption patterns (Chopra 2002, Watson 2006, Chopra *et al* 2009). For example, Watson asserts that “Western” and modern associations with higher-fat processed foods have resulted in increased consumption of fast food in Asian countries (Watson 2006). Similarly, Chopra believes that global advertising campaigns are successfully shifting local perceptions about what is desirable to eat and leading to changing consumption patterns (Chopra 2009).

One of the most holistic assessments of the nutrition transition is made by Corina Hawkes, a leading scholar in the field. She asserts that the nutrition transition cannot be attributed to a single mechanism and instead summarizes eight crucial mechanisms that current literature has identified as contributing to the nutrition transition: global food trade, foreign direct investment, global food advertising and promotions, supermarket development, emergence of global agribusiness and transnational food companies, development of global rules that govern the production, trade and distribution of food, urbanization and cultural change (Hawkes 2006, 4). Although this list may seem unwieldy, there are actually important patterns that can be identified. The emergence of global agribusiness and transnational food corporations are associated with every other item on the list. For example, global agribusinesses are crucial actors in global food trade and often set regulatory rules about safety or quality standards in the industry (Popkin 2006, 9). Transnational food corporations are typically responsible for FDI in the food sector (Hawkes 2005, 6). These transnational food corporations are also the source of most global food advertising and promotions (Chopra 2009). Even urbanization, although not directly caused by TNCs, is taken advantage of by global food retailers that establish supermarkets in newly urbanized areas. Finally, advertisements and positive associations with TNC brands are an important factor in food culture shifts (Watson 2006, 61). Therefore, food and agriculture TNCs are the common thread linking each of these mechanisms together.

However, it is necessary to be aware of potential dangers in using TNCs as a primary mode of analysis. There is a tendency in current literature to focus solely on the global or local actions of TNCs. Some scholars view TNCs as strictly global entities, citing their influence on global trade policies or establishment of global quality and safety standards. Although these transnational corporations are inherently global, employing millions of individuals and operating in countries all over the globe, they are also capable of adapting to regional or local preferences. Other scholars gravitate toward the opposite extreme, narrowing their focus to a single TNC policy in a single region. However, the global and local actions of TNCs cannot be separated from one another; it is crucial to recognize that all eight mechanisms are occurring simultaneously on a global and local scale. McDonald's, a common symbol of the nutrition transition, is an excellent example of this. A global fast food conglomerate, McDonald's operates its entire business at both the local and global levels. In fact, it is misleading to separate the two. On a global level, the company works to establish cost-effective supply chains, cultivate a positive global image and standardize employee training and friendly service (Watson, 21). On a local level, McDonald's implements unique advertising campaigns and menus in different countries. In India for example, with a large population of Hindus who don't eat beef and Muslims who don't eat pork, the company has introduced Vegetable McNuggets and a Maharaja Mac made out of lamb (Watson 2006, 24). Although these specific menu offerings are unique to India, McDonald's has adapted its menu all over the globe. Italian McDonald's serve pasta, Uruguayan McDonald's serve McHuevos (egg poached hamburgers); the list is endless. Understanding how these two levels work together to increase the power of McDonald's through greater desirability (and consumption) of their products is crucial to understanding the overall influence of TNCs on the nutrition transition. Therefore, it is necessary to utilize a theoretical framework that can explain the role of TNCs in global local interactions and the resulting influence on dietary patterns.

Global Value Chain Framework

An ideal theoretical framework for explaining the nutrition transition is global value chain analysis because it looks at the complex interactions of all global and local actors involved in changing food consumption patterns. Rather than using globalization as an ambiguous term, "a GVC analysis puts the segments of the broad "globalization" story into a specific framework to understand the actors (predominantly lead firms) and the mechanisms in place that transmit global forms and solidify global relationships" (Gereffi 2007, 11). On the most basic level, GVC analysis traces a product from its initial conception to consumption. This journey is termed a "value chain" because at each step in its production, the product gains some type of added value. Although it is instinctive to think of value chains as strictly vertical, real-world value chains are much more complex and contain intra-chain linkages (Kaplinsky 2006, 7).

GVC research is rooted in world-system theory, which separates countries into core, periphery and semi-periphery categories. World-system theory postulates that relations between countries can be explained by their position in this hierarchy (Gereffi 2009, 91). GVC analysis is similar, except it categorizes transnational corporations rather than countries. Transnational corporations can operate across nation states and have a profound impact on the global economy. GVC analysis examines global industries by looking at the role played by TNCs and how their actions/governance influence local economic processes. Historically, GVC analysis was used to understand manufacturing industries such as automobiles or electronics. However, its ability to connect local and global processes makes it useful in a variety of settings. For example, GVC

analysis can be used by environmental advocates to showcase how the global policies of TNCs result in local environmental degradation (Gereffi 2009, 92). Also, GVC analysis can be used by countries to understand how to make their domestic economies more desirable to investment from TNCs. Although each of these necessitates an expansion of the historical uses of the value chain framework, all value chain research follows a similar pattern of analysis.

Gereffi, one of the predominant GVC scholars, breaks the analysis process into four critical steps. The first step is to identify specific actors in each segment of a value chain. These actors are categorized by their size and relative role in the overall chain. At least one actor in each segment of the chain will be identified as a “lead firm,” meaning that they have the greatest market power or are responsible for setting standards that other actors must comply with. The second step is to map the geography of the value chain. If actors can easily move across borders, they will be able to gain advantages such as access to lower labor costs or more abundant raw materials. The third step is to identify relationships between the major actors in the chain. These relationships are called governance structures and determine how the chain operates. Finally, the fourth step is to analyze institutions such as NGOs, governments or regulatory bodies that are involved in the chain. This final step is particularly important because one of the primary criticisms of GVC research is that its focus is too narrow and economic in nature. GVC critics point to historical uses of value chain analysis that often ignored the influence of certain political or social environments on the actions of TNCs. However, Gereffi and other recent scholars assert that GVC research can have broad applications as long as these external factors are taken into account when assessing power dynamics within a chain.

Gereffi is actually one of the first scholars to apply GVC analysis to the global food system. He asserts that three major strengths of global value chain analysis make it ideal for tracking changes in global dietary patterns. First, because GVC analysis looks at every stage of food production systems, it shows how global food supply chains influence the type and price of food that is available to consumers. Secondly, GVC analysis looks at interactions between global and local actors in the food production system. Typically, there are global food value chains and local food value chains and GVC analysis links the two at each stage of the process. Most importantly, GVC analysis focuses on the role played by transnational food and agriculture corporations in the global food system (Gereffi 2009, 93). Because TNCs are the common thread behind a majority of scholars’ explanations for the nutrition transition, GVC analysis is an excellent framework for truly understanding the global mechanisms that are changing local diets. Putting these scholars’ arguments into the context of the global food value chain clarifies their arguments and helps to establish a more comprehensive view of the processes that are contributing to the nutrition transition. To carry out this analysis, Gereffi recommends breaking the global food production system into four major types of transnational corporations: global agribusiness, global food manufacturers, global fast food franchises and global food retailers (Gereffi 2009, 94). In this paper, global value chain framework will be used to explain how each type of transnational corporation in the global food value chain impacts nutrition patterns on a local level.

Role of TNCs in the Nutrition Transition

Global Food Agribusiness

Global food agribusinesses are involved in the first stage of the global food value chain as they are responsible for “product conception” or initial food production. There has been an

enormous concentration in the global agricultural sector in recent years and relatively few firms now control a majority of the industry. One explanation of rise in global food agribusiness is found by looking at the economic advantages of large farms in comparison to small, local farms. In some cases like the palm oil industry, which will be examined later in this paper, these large farms are usually directly owned by global agribusinesses. In other industries, these large farms are independently owned but have long-term contracts with global agribusinesses. Small, local farms are independently owned as well, but are responsible for selling their own products to a variety of customers. The first economic advantage of larger farms is their ability to establish economies of scale, allowing them to sell their products at lower prices and outcompete smaller farms. They also have greater financial resources, ensuring that they can continue to invest in the latest technological advancements (Ghezan 2002, 397). Greater financial capital also grants large farms better protection against the uncertain nature of the farming industry. Inclement weather or pest invasions can wipe out entire crop fields. Strong relationships with global agribusinesses means that contracted farms have consistent and reliable access to important market information and are able to make informed business decisions (Ghezan 2002, 398). Additionally, large farms are better able to meet the specific requirements of TNCs farther downstream in the global food value chain. For example, global retailers may demand higher safety standards than required by national laws (Reardon 2009, 10). For farms to remain profitable in a retailer-dominated market, they must be able to meet these higher standards. Manufacturers or fast food chains may also have certain cosmetic requirements. For example, in order for tomatoes to survive the Big Mac assembly line, McDonald's requires firm, cardboard-like fruit (Barndt 2008, 102). McDonald's typically purchases its tomatoes from agribusinesses that can produce this type of fruit, regardless of taste. Since small, local farmers tend to focus on taste rather than texture, they may have spent years cultivating the best tomato crop, but are unable to sell this variety to large fast food chains. Therefore, they may be outcompeted by large farms that can more easily switch and cultivate the desired tomato variety (Barndt 2008, 13). No matter what the standard, global agribusinesses have the resources to meet these demands, while smaller farmers typically do not.

Because of their many advantages, large contracted farms and agribusinesses have come to dominate the agricultural sector in many developing countries. This has several consequences for food consumption patterns. First, because of their economies of scale, global food agribusinesses are able to provide global food processing firms with raw inputs at relatively low prices. In turn, this allows the processed food manufacturers to sell their products to consumers at lower prices, encouraging consumption of cheap processed foods. Secondly and most importantly, dominance of global agribusinesses may eliminate traditional local food supply chains. Global agribusinesses typically focus on the development of cash crops rather than subsistence agriculture. For example, domestic farms used to supply a majority of Pacific island nation food requirements (Thow 2010, 150). However, as agribusinesses began to invest in the region and establish contracts with farms, the land was instead used to grow agricultural commodities for export. Limited supplies of local food products meant much higher prices and most nations started importing cheaper Western food staples to keep up with domestic food requirements (Thow 2010, 153). Similar to the Pacific islands, China's agricultural system is slowly changing from meeting domestic demands for food to cultivating products for export or sale to global food manufacturers and retailers (Gereffi 2009, 98). As a result, China is moving away from its traditional meals of rice and vegetables as the local availability of these products decreases and prices rise (Gereffi 2009, 100). Essentially, this shift away from agricultural production for the domestic market leads to a deviation from traditional diets as local food products are no longer available. Therefore, global agribusinesses often encourage negative

changes in food consumption patterns by forcing local communities to rely on Western food imports or processed food sold at supermarkets to meet their food requirements.

Global Food Manufacturers

Food manufacturing and processing is the next segment of the global food value chain. Global agribusinesses produce crude agricultural products like palm oil or raw sugar and then ship them to food manufacturers for refining and processing. With the exception of fresh produce, which goes directly from agribusiness to retail, most agricultural products follow this route to become processed food inputs. Although it would be an overstatement to say that all processed food is unhealthy, processed foods frequently contain high levels of fat, salt and sugar (Hawkes 2005, 357). Because the nutrition transition is characterized by increased consumption of edible oils and caloric sweeteners, it is important to look at the ways in which global food manufacturers have increased the availability of processed foods.

One mechanism through which food manufacturers promote processed foods is foreign direct investment (Hawkes 2005, 358). After significant FDI into the agricultural sector in the 1990s, most FDI is now concentrated in the food processing and manufacturing sector (Hawkes 2009, 23). First, many TNCs find it profitable to invest in food processing capacity in developing countries. These developing countries often have cheaper labor or more abundant raw materials that the firm can take advantage of. Additionally, processing and selling food in the same market eliminates transportation and storage costs. Even highly processed food has specific storage requirements, which can become costly over long distances (Hawkes 2005, 361). Investing directly may also allow firms to work around trade barriers. Although most trade barriers have been eliminated in this era of economic liberalization, higher food import tariffs do exist in some countries. By setting up manufacturing plants within the country, TNCs can avoid these high tariffs, yet still charge the same prices for their food. FDI into processed foods can also allow a global food manufacturer to increase the power of its brand. If food is being produced within the country, the brand will be more visible to citizens and they may be more likely to purchase the products. Also, when setting up manufacturing plants, TNCs often acquire popular local brands. By associating their name with an established product, global food manufacturers are increasing the desirability of their own brand (Hawkes 2005, 362). Essentially, because FDI into processed food is so profitable for TNCs, the industry has continued to grow.

In addition to increasing the availability of processed food products, global food manufacturers work hard to encourage consumers to buy their products. The revenue spent on global food advertising is astonishingly high. Between 1980 and 2004, the total expenditure on food advertising more than doubled, reaching \$512 billion in the mid 2000s (Chopra 2009, 253). This money is increasingly being spent in developing countries as large corporations want to increase the popularity of their products in these new markets. It is not enough for global retailers to have the processed food products available; customers must want to purchase these processed, high-sugar and high-fat foods (Chopra 2009, 255). Because these foods tend to be unfamiliar, TNCs must ensure that they are desirable to new consumers. To accomplish this, TNCs use the “5 P’s of marketing: price, packaging, product, promotion and public relations” (Chopra 2009, 256). In terms of price and packaging, TNCs will create smaller and cheaper versions of processed products for sale in poorer areas. Global food manufacturers also develop products specifically for local markets. Specialized products may be as simple as translating the name into the local language or as complicated as creating entirely new items based on local taste preferences. Global food manufacturers pursue promotional strategies through television, print media and radio advertising, ensuring that their brand is recognizable. Finally, global food

manufacturers utilize public relations strategies such as partnering with a popular local sports team or supporting local educational initiatives (Chopra 2009, 259). Each of these marketing tactics is a crucial way for global food manufacturers to increase the market for their products and encourage greater consumption.

Although Chopra paints a picture of marketing success, it is important to look at TNCs that have actually employed the “5 P’s of marketing.” A perfect example of this is Kraft Food Inc. and their effort to encourage greater consumption of Oreos in China. Kraft first introduced Oreos in the country 1996, but sales were lackluster for nearly a decade. After extensive research on local taste preferences, Kraft determined that the Chinese enjoyed snacks that were smaller and less sweet than typical American snacks. Similarly, the company took note of popular Chinese dessert flavors like mango, orange and green tea. In 2007, the company introduced smaller, less sweet Oreos with fruit-flavored cream filling that were an instant hit (Jargon 2008). But Kraft did not stop there. Wanting to increase the visibility of Oreos throughout China, Kraft launched an extensive series of television advertisements and a grassroots marketing campaign. The TV advertisements featured young children bonding with parents and grandparents by showing their families how to dip Oreos in milk. For the grassroots campaign, Kraft actually created an Oreo apprentice program at universities throughout China and trained 300 students to serve as Oreo ambassadors. Some rode around Beijing on bicycles with decorated Oreo wheel covers, handing out free Oreos to thousands of consumers. Others handed out Oreos at popular sporting events (Jargon 2008). With this combination of marketing tactics, Kraft sales in China have grown 60% over the past five years and the Oreo is now more popular than all traditional Chinese cookies with 13% of the market share (Smith 2012). By catering to local tastes and pursuing aggressive marketing campaigns, Kraft was able to change Chinese snack preferences and consumption patterns. This case study can reasonably be applied to other global food manufacturers in other locations. Not only do global food manufacturers increase the availability of processed foods, but if they can successfully make these foods seem more attractive than traditional options, cultural norms will change and food consumption patterns will begin to shift.

Global Food Retailers

Once foods have been successfully produced and marketed by global manufacturing companies, they are shipped to global food retailers where consumers can actually purchase these products. Large supermarkets did not exist in a majority of developing countries until the early 1990s (Reardon 2010, 111). Fresh produce was purchased daily from public markets and non-perishable items were purchased less frequently from local shops. Although there were few quality control standards and unforeseen weather conditions could make produce scarce and unaffordable, the food was local and contained only the sugar or fat that was added in the kitchen. Beginning in the early 1990s however, this began to change as global retail chains infiltrated local food markets. To give a numerical value to the change, the average share of supermarkets in total food retail went from 10-20% in 1990 to 50-60% in the mid 2000s in several South American and Asian countries (Reardon 2010, 112). In ten years, these countries experienced the kind of supermarket expansion that took place over nearly five decades in the US and UK (Reardon 2010, 112).

To achieve this rapid success, global food retailers typically follow reliable patterns of supermarket development. Often, supermarkets will partner with a domestic chain to acquire all of their stores in regions throughout the country. This speeds up the diffusion process and makes the store name more recognizable, which is beneficial when stores are first trying to find their

economic footing in a country (Reardon 2010, 113). Global food retailers will also tailor their various stores to fit local preferences. They will set up larger, flagship stores with more expensive products in large cities or urban areas where incomes tend to be higher. In poorer neighborhoods, they will set up smaller markets or discount shops with a smaller range of products (Reardon 2010, 114). Reardon has also identified a typical pattern of food sales when global food retailers first establish supermarkets in a developing country. At first, stores tend to sell mainly processed foods. These foods are cheap, primarily because most food retailers have relationships with the global food manufacturers addressed earlier in this paper. These foods are also easy to stock and do not perish quickly if sales are not as high as expected when the store first opens. Once a store has established a solid base of customers, it will introduce dairy products and meats. The final step is to expand into the produce market and start selling fruits and vegetables. This last step is typically the slowest as fruits and vegetables are more expensive, harder to obtain and have a short shelf life (Reardon 2010, 115). Because it is much easier for supermarkets to lose profits on produce, most large supermarkets have higher supplies of unhealthy, processed foods.

Besides stocking large amounts of processed foods, there are several important differences between supermarkets and traditional retailers that can explain the impact of supermarkets on local consumption patterns. First, supermarkets have highly efficient procurement systems as a result of strong relationships to other corporations throughout the global food chain. For example, supermarkets may have contracts with manufacturers who directly ship their processed food products, reducing transportation costs. Supermarkets also rely on centralized distribution centers that eliminate many transaction costs (Reardon 2003, 1142). Supermarkets can pass these savings onto consumers and sell their products at a lower price than traditional food markets. Because supermarkets only have this advantage in the processed food market, processed foods tend to be the cheapest. Low-income customers capitalize on these prices and begin to shop at supermarkets (Reardon 2010, 119). Additionally, supermarkets may establish contracts with processing firms to develop private labels that will only be sold at their stores. To support the private label, processing firms may enter into contracts with producers to gain the highest quality ingredients for the label. Supermarkets will advertise the label and encourage consumers to think that it is superior to similar, unbranded products (Reardon 2003, 1144). Because the supermarket chain is the only place to buy the private label products, these advertisements will ideally draw more consumers into the store and increase the overall desirability of supermarkets in comparison to traditional local markets (Reardon 2003, 1145). Supermarkets also utilize the latest technology to ensure efficiency in procurement systems as well as in-store transactions. Finally, supermarkets typically have food safety and quality standards that are not found in traditional food shops (Reardon 2003, 1145). Customers recognize and appreciate these perks and may begin to shop at supermarket chains because they value efficiency and food safety. As more individuals gravitate toward supermarkets, their exposure to processed foods will rise. Although critics have argued that shopping at supermarkets does not necessarily mean consumers are purchasing the processed food, supermarkets in developing countries make nearly 70% of their profits from processed food (Reardon 2010, 120). Therefore, it is highly likely that consumers in developing countries are consuming processed foods in greater quantities because of the actions of TNCs in the global food value chain.

Global Fast Food Franchises

Fast food franchises are the final component of the global food value chain. Essentially, fast food franchises and global retailers can be seen as two separate endpoints of the global food value chain. Retailers sell food to individuals to consume in their home and fast food franchises sell food to individuals to consume either in a restaurant or on-the-go. As stated at the beginning of this paper, the nutrition transition not only involves the consumption of higher-fat, higher-sugar processed food, but an increase in meals eaten outside the home. The rapidly growing fast food industry is at least partially responsible for this portion of the nutrition transition.

As fast food franchises have started to infiltrate the food industries in most developing countries, cultural ideas about food have begun to change. These fast food franchises have touted their products as “Western” and created a culture in which eating foreign fast food is associated with modernity and progress. Fast food franchises rely on global standards of efficiency, service and cleanliness and customers notice. For example, in Beijing, being able to eat at McDonald’s is seen as a symbol of status and wealth (Watson 2006, 61). This is primarily because fried food is automatically associated with ideals of modernization. On the other hand, boiled, homemade foods are considered inferior as they are associated with outdated cultural traditions. Interestingly, in the past, emphasis was placed on traditional food preparation methods and those individuals that prepared traditional recipes, particularly for holidays or festivals, were held in high esteem. However, this cultural norm has begun to fade away. McDonald’s restaurants in Beijing have become one of the most popular places to hold children’s birthday parties or other holiday celebrations. By having a child’s birthday party there, it suggests that the family is embracing the modern age and enjoying the benefits of economic growth. Fast food franchises have both encouraged and capitalized on these changing norms in order to increase sales and attract more customers.

In addition to associating themselves with global modernity and progress, fast food franchises have increased their success by pursuing local adaptations. Consumers want to be associated with progress, but they also have specific local food customs that will not change such as religious dietary restrictions. In places that are primarily Hindu, beef products will clearly not sell. Alternatively, locations with strong Muslim populations are not the ideal place to sell pork. Other countries have similar food stigmas, whether they are religious or social. Cold food is associated with offerings to the dead in many Asian cultures, so sandwiches and salads are infrequent menu offerings in Asian nations (Watson 2006, 80). Even global giants like McDonald’s will alter their menus to cater to local tastes. Seeing the success of global fast food chains often spurs the creation of competing domestic fast food chains. These domestic fast food companies often model their food production after global fast food franchises. For example, some of the most successful domestic fast food companies in Beijing are run by individuals who received their training from McDonald’s or KFC (Watson 2006, 74). By using the foreign business model of technological advancement and efficiency, many domestic fast food companies have flourished. In terms of the nutrition transition, this simply increases the amount of fast food available to consumers.

In addition to creating a culture in which fast food is both acceptable and widely available, fast food franchises have influenced consumption patterns through low prices and advertising campaigns. Typically fast food franchises have lower prices because they are able to pass some labor costs onto the consumer (Watson 2006, 92). Instead of hiring extra employees to serve food and bus the tables, fast food restaurants rely on the customer to be their own waiter and busboy. This allows some fast food companies to charge lower prices than traditional local

restaurants. Fast food franchises can also charge lower prices than similar domestic locations because of their streamlined production and focus on efficiency. Food products are typically purchased in bulk and companies often have contracts with manufacturers that cut down transaction costs (Watson 2006, 72). Even when fast food franchises are not able to offer lower prices than local vendors, they rely on extensive advertising campaigns to attract new customers, particularly children. In comparison to their elders, children often have a vast knowledge of fast food products through television advertisements or other schoolmates. Children have an extensive recall of fast food advertisements and often request to visit specific fast food locations that they have seen advertised (Hastings 2006, 33). Extensive exposure to food advertising actually influences children's food choices independently of all other factors, suggesting that most fast food advertising campaigns are successful (Hastings 2006, 35). The combination of lower prices and greater desirability encourages individuals to frequent fast food restaurants and consume more fast food overall.

There are several consequences of increased fast food consumption. Although not every fast food menu item is unhealthy, a majority of food items sold at transnational fast food chains contain relatively high amounts of fat, particularly trans fat in fried food offerings. Because most fast food chains are valued for their "Western" offerings, these higher fat menu items are consumed more frequently. Additionally, many countries lack a basic understanding of the true nutritional and caloric content of fast food meals. For example, fast food is viewed as a snack in many Asian cultures. Traditional meals always contain rice, so anything that lacks rice and other traditional food groups is simply viewed as a small snack (Watson 2006, 85). Because of this perception, it is not uncommon for individuals to consume a mid-afternoon meal at a fast food chain and then return home for a traditional dinner. Individuals who frequent fast food restaurants are consuming many more calories on a daily basis than they realize, which can lead to a risk of obesity. Another source of misperceptions about the nutrition of fast food comes from the fast food chains themselves. For example, the Beijing McDonald's offers free tours of their kitchens on a daily basis. Throughout the tour, it is stressed that each meal is "scientifically designed" to contain all the appropriate nutrients one needs in a day (Watson 2006, 44). This idea that McDonald's meals are very healthy and constructed with nutrition in mind is widely accepted throughout Beijing. Although nutritional content is usually not a factor that draws individuals to fast food restaurants, it is important to note that many individuals are unaware of the poor nutritional value of the food that they are consuming. Overall, fast food restaurants have both influenced and utilized local perceptions about their food in an effort to boost sales and increase fast food consumption.

Relationships in the Global Food Value Chain

After identifying all actors in the global food value chain, the third step of GVC analysis is to examine relationships between the lead actors. Although a majority of the relationships between these TNCs have already been identified, it is important to take a step back and look at the overall picture. The GVC analysis makes it possible to reframe the arguments of many scholars in this field. Rather than looking at individual mechanisms that contribute to the nutrition transition, it is possible to see how the combined actions of TNCs at every level of the global food value chain are influencing consumption patterns. TNCs capitalize on the cost-effectiveness of operating globally, reaping the benefit of bulk discounts or elimination of multiple transaction costs. At the same time, TNCs pursue local adaptations that contribute to gradual shifts in local food culture and increase the desirability of these global food products around the world. Finally, TNCs in each segment of the value chain have established

relationships with one another ranging from long-term price reduction contracts to direct shipping to advertising coordination. The sum of these TNC actions has increased the affordability, availability and desirability of diets higher in fat and sugar with a greater emphasis on store-brands and meals eaten away from the home. These diets are the essence of the nutrition transition defined at the beginning of this paper.

Role of Other Actors in the Global Food Value Chain

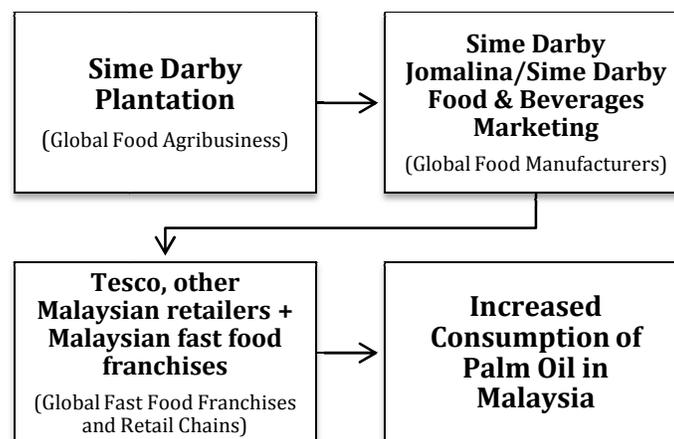
The final step of global food value chain analysis is to address the role of outside actors on the chain. First, the WTO played an important role in negotiating the Uruguay round of GATT, which included agriculture in global trade rules for the first time as countries pledged to reduce agricultural tariffs (Hawkes 2006, 5). Although there is still significant protection for the agricultural industry, these reforms paved the way for growth of global agribusiness. Governments of developing countries have also played a particularly influential role in the global food value chain through trade liberalization policies. For example, many developing countries lowered food import and export taxes. This allowed for an intensification of many relationships between TNCs. For example, global agribusinesses in one location were able to ship raw products to food manufacturers in other locations without incurring too much of an additional cost. Similarly, global manufacturers were able to ship their processed food products to global retailers in other countries without being hampered by high import or export taxes. Governments also loosened rules regarding FDI and created more favorable investment climates (Hawkes 2010, 40). Without these policies, global food manufacturers would never have been able to build processing plants in developing countries. Likewise, global retailers would not have been able to build supermarkets without new rules regarding FDI. Although the primary mechanism of the nutrition transition is the combined actions of TNCs in the global food value chain, it is essential to acknowledge that many of these actions would not have been possible without GATT and economic liberalization in developing countries.

Malaysia Case Study

Palm Oil

Applying the GVC framework to the case of the nutrition transition in Malaysia reveals some of the actors and mechanisms that have contributed to the rise of chronic disease. Because one of the primary signatures of the nutrition transition is “the rapid increase in consumption of low-cost edible vegetable oils,” countries with large per capita increases in palm oil consumption were identified (Popkin 2006, 8). Palm oil is of particular interest because many corporations in the palm industry tout it as one of the healthier edible oils. However, recent studies have shown that palm oil has several functional characteristics that make it similar to trans fat. Individuals who consumed diets high in palm oil had high levels of “bad” cholesterol and apolipoprotein B, which transports cholesterol around the body and increases risk for heart attack and obesity (USDA 2009). There is a definitive upward trend in per capita consumption of palm oil in developing countries. For example, Bangladesh, Indonesia, India and Malaysia have all seen double-digit increases in per capita consumption (PSD Online 2012). Malaysia has seen a particularly large per capita increase in palm oil consumption over the past two decades. In 1990, Malaysians were each consuming 11.5 kg of palm oil per year. By 2010, Malaysians were each consuming 30.8 kg of palm oil per year, an increase of 19.1 kg per capita over the course of just twenty years (PSD Online 2012). GVC analysis can help us understand this dramatic dietary shift in Malaysia.

The palm oil industry in Malaysia is highly complex. The British colonialists planted the first oil palm seeds here in the late 1800s for limited domestic use. In the early 1900s, several British companies saw an opportunity for profits and began planting oil palm commercially. Most palm oil was exported directly to England or other European countries where it was processed and sold in domestic markets. The industry continued to grow even after 1957 when Malaysia was granted independence. By the mid 1980s, the Malaysian government began careful coordination with the private sector to find ways to increase domestic profits from palm oil. In 1985, in collaboration with the major plantation companies (most of which had British heritage), the Malaysian government developed an Industrial Master Plan (IMP) to develop all segments of the palm oil value chain in Malaysia (Rasiah 2006). Because crude production outputs were already flourishing in the country (British imperial companies had radically expanded oil palm acreage) the plan focused on expanding downstream production segments. For example, the government introduced generous tax credits for capital investments in oil refining and processing plants. Because of these policies, several companies were able to build refineries at drastically reduced costs. The IMP also provided incentives for firms that invested in manufacturing R&D and produced a wider variety of palm oil products such as cooking oil, shortening, dough fat, cocoa butter, chocolate products and more. In only ten years, these policies were so successful that by 1996, Malaysia's processing capacity actually exceeded the raw palm oil output (MPOC 2009). In 1996, the government launched the IMP2, which provided incentives for expanding oil palm acreage. IMP2 also encouraged firms to expand palm oil processing for alternative uses such as salad dressings, modified oils or powdered ice creams (Rasiah 2006). Because of all these tax credits, subsidies and other incentives, the government paved the way for TNCs to dominate every aspect of the Malaysian palm oil value chain. This case study will focus specifically on the influence of Sime Darby, a large transnational company that is a dominant player in Malaysian palm oil industry from seed to frying pan.



Modern day Sime Darby is the result of a merger between three companies: Harrisons & Crossfield, Guthrie & Co and Sime Darby. Guthrie & Co began in 1821 as a tea and coffee trading company. Harrisons was originally founded in 1844 as a British trading enterprise throughout Southeast Asia. Sime Darby was founded by European businessmen in 1910 as a rubber plantation. Their British connections and internationally diverse investments allowed each company to flourish throughout the 20th century. Each company invested in a wide range of activities from chemical production to coconut plantations to automobile manufacturing, but all had one thing in common: a large stake in the Malaysia palm oil industry. Guthrie & Co was

responsible for converting large swaths of land to palm oil cultivation in the 1980s. Harrisons & Crossfield ventured into the food sector and was heavily involved in increasing the Malaysian palm oil processing capacity. The original Sime Darby was similarly involved in both plantation and refinery expansion. In an effort to create the world's largest player in the palm oil industry, the three companies merged in 2007. Currently, modern day Sime Darby has operations in over 20 countries and employs more than 100,000 individuals worldwide.

In terms of palm oil, the company operates large-scale palm oil plantations in Malaysia, Indonesia and Liberia. Its largest plantations are in Malaysia where it owns 314,035 hectares of land (MPOC 2009). The company produces 2.4 million tons of crude palm oil annually, which makes up six percent of the world's total palm output today. In total, nearly 70% of Malaysian agricultural land is devoted to palm oil and the three original companies have played a major role through continued expansion and land acquisition strategies (MPOC 2009). These companies benefitted greatly from the IMP and IMP2 policies and established several umbrella companies with specific downstream roles. Throughout the past fifty years, the company has set up refineries in Singapore, Thailand, Vietnam, Europe and South Africa. One of the primary refining companies in Malaysia is Sime Darby Jomalina, which was established in 1976. Within two years of its inception, the company had built several factories that could accomplish the full range of processing and refining activities. Jomalina strategically located itself near a large port to ensure a continuous supply of palm oil as well as easy access to domestic or international export. Crude palm oil is supplied directly from the Sime Darby plantations in Malaysia and Indonesia through long-term contracts. Jomalina processes the palm oil and produces a variety of products ranging from cooking oil to shortening to dough fat (Sime Darby Jomalina 2011). A majority of Jomalina's products are produced in bulk as the primary customers are other processed food manufacturers.

In addition to plantation and processing capabilities, the company has expanded its reach into direct marketing and retail. The worldwide refineries mentioned above each have their own unique brands that are sold to local markets. For example, Unimills in the Netherlands sells GoldBake dough fats and Delico specialty margarines. The South African oil refinery is the only refinery in the region to hold the highest safety accreditation and sells its products under a Crispa brand that is widely recognized. Sime Darby Food and Beverages Marketing, another umbrella company formed about ten years ago, has established some of the major Sime Darby brands in Malaysia. The sole purpose of this company is to distribute the processed agricultural products to domestic and international markets. The company has a "new strategic direction as a cooking oil specialist" and created a new brand called ALIF under which to market their palm oil directly to consumers (Sime Darby Plantation 2011). The introduction of the ALIF brand was accompanied by television, print and radio marketing. One of their promotional videos is available on YouTube. This video features an attractive young couple living in a fancy, modern house. The man is watching soccer on a large flat-screen television and the woman is cooking with Sime Darby palm oil in a sleek kitchen with granite countertops (Sime Darby Foods 2009). Although the commercial is in Malay, the message is very clear. Using Sime Darby palm oil is classy, modern and affiliates an individual with a "Western" style of living. This is a very clear example of the way in which TNCs try to associate their products with modernity and progress. In addition to palm oil, the company has also begun to make cooking sauces and desserts under the ALIF brand. One example of marketing these products is found in a Sime Darby press release covering the Malaysia Agriculture, Horticulture and Agro-tourism Show in 2008. The company sent representatives who "worked hard to promote their products and enticed visitors' taste buds

with freshly cooked samples” (Sime Darby Newsletter 2008). In a further attempt to increase the visibility of the new ALIF brand, the company has partnered with 33 domestic distributors throughout Malaysia.

Other branches of Sime Darby have also partnered with global retailers and fast food franchises. Sime Darby Jomalina, the major umbrella food processing company, has partnerships with several fast food franchises. They produce shortening, industrial palm oil and frying palm oil in bulk (Sime Darby Jomalina 2011). These products are shipped directly to fast food franchises, providing yet another example of efficiency and elimination of transaction costs. The fast food franchises can pass these savings onto consumers by selling their products at a lower price. Sime Darby has also established partnerships with global retailers. In 2001, Sime Darby partnered with the global retailer Tesco, a TNC with 3,409 supermarket locations in thirteen countries (Tesco 2011). The joint-venture has since established more than thirty “hypermarkets” in Malaysia. These hypermarkets specialize in food sales, but do carry a wider variety of products including clothes and household supplies. Tesco Malaysia has recently acquired a popular local retail chain, expanding its physical base as well as making the Tesco brand more recognizable to consumers (Tesco 2011). All Tesco Malaysia locations carry all Sime Darby brands, contributing to the overall availability of palm oil products throughout Malaysia. Although not all palm oil in Malaysia is produced by Sime Darby, the company does have transnational activity at every stage of the palm oil value chain in Malaysia. Because of Sime Darby’s influence, more palm oil is processed in Malaysia, which makes it cheaper for Malaysian consumers and retailers. This processed palm oil is either sold directly to consumers through umbrella companies or indirectly through fast food chain suppliers or other retailers such as Tesco. Through marketing campaigns, Sime Darby has helped to facilitate an environment in Malaysia where palm oil is not only readily available, but desirable to consume. It is highly likely that this dual impact of Sime Darby has played a role in the rapid increase in per capita consumption of palm oil in Malaysia in the past twenty years.

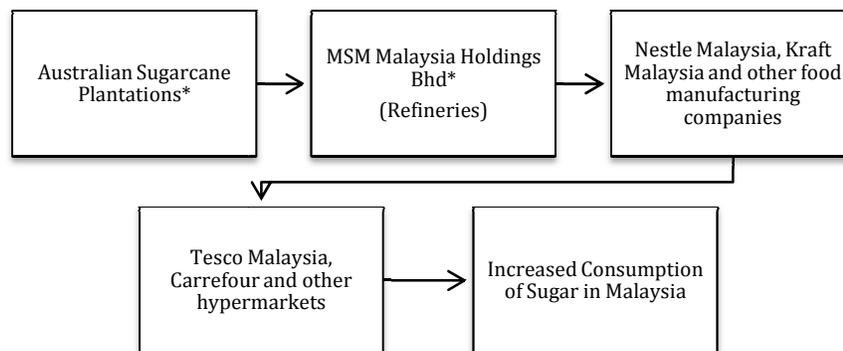
Sugar

In addition to the influence of TNCs on rising palm oil consumption in Malaysia, it is important to look at the role of TNCs on Malaysian sugar consumption patterns. Popkin identifies rising sugar consumption as the second major signature of the nutrition transition (Popkin 2006, 8). Sugar can be damaging to an individual’s health as excess sugar consumption has been linked to insulin resistance and the development of diabetes. It has also been hypothesized that excessive sugar consumption leads to an increased risk for obesity (Astrup 2008, 46). Several countries have seen large increases in sugar consumption in the past twenty years such as Argentina, Brazil, Indonesia, Bangladesh and Malaysia. In 1990, per capita sugar consumption in Malaysia was 38.9 kg annually. By 2010, per capita sugar consumption in Malaysia had risen to 47.5 kg each year (PSD Online 2012). Between 2000 and 2010, sugar demand rose 3.4% annually and is projected to continue to grow at this rate in the coming decade (Jin Hun 2011). GVC analysis can help us to understand this dramatic dietary shift.

The history of sugar production in Malaysia is highly complex and intrinsically tied to the government. Until the late 1950s, Malaysia was dependent on refined sugar imports from Britain, a vestige of the colonial era. However, a prominent Malaysian businessman saw an opportunity to reduce Malaysia’s dependence on imported refined sugar in 1959. Robert Kuok received an international business education and was well versed in “Western” business models. Kuok’s company, Kuok Brothers Bhd, partnered with two Japanese companies to create the Malayan

Sugar Manufacturing Company (MSM 2009). Kuok was also involved in the establishment of Kilang Gula Felda Perlis (KGFP), which operates a sugarcane plantation and large refinery. Both companies invested heavily in modern technology and Malaysian refining capacity grew dramatically (MSM 2009). By the 1970s, Kuok's companies controlled almost 80% of the Malaysian sugar market and output from Malaysian refineries exceeded domestic demand (MSM 2009). However, the Malaysian sugarcane industry has recently undergone several important changes. Raw sugarcane output reached its peak in the early 2000s and has since dropped off dramatically. Although there is no official explanation for this drop, it appears to be the result of two mechanisms. First, the Malaysian soil is less than ideal for sugarcane and other countries, such as Australia, can produce raw sugarcane at much lower costs (FAO 1998). Secondly, most agricultural land in the country has been converted to palm oil cultivation with the expansion of companies like Sime Darby (Sime Darby Plantation 2009). Essentially, it became more profitable to import raw sugarcane from other countries than to produce it domestically. The second major change was a complete restructuring of the Malaysian sugarcane industry in 2010 when Felda Global Ventures bought all of Kuok's sugar businesses and essentially took over the entire industry in Malaysia. Although Felda Global Ventures is owned and operated primarily by the Malaysian government, the company can be treated like a TNC because it has "business interests around the globe and long-standing partnerships with large multinationals" (Felda 2011). To manage these newly acquired sugar businesses, Felda created the MSM Malaysia Holdings Bhd in 2011. The remainder of this case study will focus on the MSM Malaysia Holdings Bhd, as it is now the primary sugar company in the country and has important links to other major actors in the Malaysian sugar value chain.

First, it is crucial to elaborate on the historic and current role of the government in the Malaysian sugar value chain. Even before the government got directly involved with the Felda purchase, the government had always been indirectly involved in the industry. Starting in 1961, the Malaysian government introduced a sugar price ceiling to protect domestic consumers from volatile international prices (Chan Onn 2010). Although the price ceiling has risen over time to account for inflation, sugar in Malaysia is still cheaper than in any of its neighboring countries such as Thailand (Teoh 2012). In order to maintain this ceiling, the government has historically provided subsidies to the Malaysian sugar refineries. As an added mechanism of keeping prices low for the refineries, the government has been involved in negotiating long-term contracts with international raw sugar producers. These contracts have fixed prices and have often resulted in savings for the sugar refineries if the international market price rises over the course of the contract (CIMB 2011). These processes continue to be influential today. In conjunction with the Malaysia Ministry of International Trade and Industry (MITI), MSM Holdings Bhd has renegotiated long-term contracts with Australian sugarcane corporations for the next three years (CIMB 2011). The government recently renewed its subsidies to MSM Holdings Bhd so that the company can continue to sell sugar below the price ceiling (Teoh 2012). Some consumer advocacy groups have argued that these subsidies are unnecessary and are simply a way to increase profits for the politically-connected sugar refineries (Teoh 2012). Regardless of the rationale behind the subsidies, the government has ensured that the two refineries can continue to provide the domestic market with ample sugar supplies at a low cost.



*Government Intervention Points

The MSM Malaysia Holdings Bhd operates both the MSM refinery and the KGFP refinery. The MSM sugar refinery is the largest in Malaysia and more than 80% of its refined sugar products are sold domestically (MSM Holdings 2011). The MSM sugar refinery is located strategically near the Penang Port for easy transport to shipping containers. There are also railroad connections onsite that link the refinery to warehouses throughout the country. These warehouses all have technologically advanced packaging facilities and are able to respond to the specific demands of different clients. This streamlines the supply chain and eliminates intermediate transaction costs (MSM Holdings 2011). Most MSM clients include major Malaysian processed food manufacturers such as Nestle Bhd and Kraft Malaysia. In particular, Nestle Bhd purchases all of its refined sugar requirements from MSM (MSM Holdings 2011). Contracts with MSM as well as the government price ceiling allow Nestle to sell its high-sugar products at relatively low prices. In addition to the affordability of the products, Nestle has pursued convincing advertising campaigns. Nestle Malaysia recently released a promotional video to celebrate the company's 100 year anniversary in Malaysia. The video features several individuals including small children eating ice cream after winning a soccer game, an older man eating a Nestle Malaysia brand of noodles and a crying teenage girl who is offered a Kit-Kat to cheer up. At the end, the video directs viewers to a website where they can share their own favorite memories with Nestle products (Nestle Malaysia 2012). The video is a very interesting combination of the global and local TNC strategies mentioned earlier in this paper. Internationally recognized Nestle products like Kit-Kat are utilized in scenes with young individuals wearing Western clothes, while Malaysia-specific products are highlighted in scenes featuring older individuals or cultural traditions. By encouraging Malaysians to view Nestle products as an integrated part of their local culture, Nestle increases the desirability of their products.

Similarly, Kraft Malaysia purchases a majority of its refined sugar requirements from MSM Holdings Bhd and has established several successful advertising campaigns to promote their high-sugar products. The company has had processing factories in Malaysia since 1959 and markets itself as "Malaysia's Favorite Snacking Company" (Kraft Malaysia 2011). To support this claim, the company has pursued individual Malaysian marketing campaigns for each of its confectionary brands such as Cadbury and Toblerone. There are print, radio and television advertisements, each designed to show how these foreign-brand snacks can fit into the daily life of Malaysian consumers. Cadbury even hosted a "Malaysia's Best-Loved Chocolate Carnival" featuring children's games and free chocolate giveaways (Kraft Malaysia 2011). If marketing

campaigns are successful and Malaysian consumers crave these Nestle or Kraft products, they can purchase them in hypermarkets such as Carrefour, Tesco and Giant, which have dramatically increased their presence in Malaysia in recent years. The growth rate of large supermarkets in Malaysia was 8.8% annually between 1990 and 2000 (Mui 2003, 4). Not only are there more supermarkets, but studies have shown that young Malaysians prefer shopping in new supermarket complexes to traditional shophouses (Mui 2003, 6). Because these hypermarkets carry the Kraft and Nestle brands at the lowest possible prices, it is likely that consumption of these high-sugar products increases as more individuals shop at hypermarkets.

Overall, coordination between the government and various TNC actors has made sugar cheap and readily available to Malaysian consumers. This case study is an excellent example of the importance of examining the role of outside actors on a global food value chain. Government-negotiated contracts with Australian sugarcane plantations and sugar subsidies to major refining companies like MSM Malaysia Holdings Bhd helped the domestic sugar refining industry to flourish. This refined sugar is sold directly to processed food manufacturers like Nestle and Kraft or hypermarkets like Tesco and Carrefour. At the same time, TNC promotional campaigns have fostered an environment in Malaysia where processed foods and beverages high in sugar are desirable to consume. It is very likely that this combination of actions has contributed to the increase in per capita sugar consumption in Malaysia in the past twenty years.

Malaysian Health in the Future

Perhaps as a result of increasing consumption of palm oil and sugar, the instances of noncommunicable disease are on the rise in Malaysia. As stated earlier, between 1996 and 2006, the percent of overweight adults in Malaysia rose from 16.6% to 29.1% (Khambalia, 403). Obesity rates rose from just 4.4% of the population in 1996 to 14% in 2006 (Khambalia, 403). Malaysia also saw an increase in the prevalence of diabetes from 6.3% in 1986 to nearly 15% in 2006 (Malaysia Ministry of Health 2008, 59). These diseases place a heavy burden on Malaysia. On an individual level, chronic health problems correlate to decreased returns on education, lower wages, more unemployment and a greater reliance on government welfare (Yach, 62). On a societal level, chronic illness not only decreases overall economic productivity but creates a poor social environment. The sheer healthcare cost of diseases like obesity and diabetes is very high and many individuals in developing countries cannot afford to pay for appropriate medical care. This means that individuals either go untreated or are treated at the governments' expense (Yach, 63). Medical resources are stretched particularly thin in developing countries like Malaysia that are still trying to eradicate communicable diseases such as tuberculosis or malaria. These diseases command a significant amount of time and money and often receive priority attention in order to avoid an epidemic (Daar, 495). Although many noncommunicable diseases could be described as reaching epidemic proportions, they are not contagious or immediately life-threatening. However, these diseases are just as devastating in the long run.

Both private and public actors have acknowledged the growing disease trend in Malaysia. On the private side, there is a growing number of privately owned obesity clinics in Malaysia designed to help individuals lose weight. Interestingly, one of the primary obesity clinics in Malaysia is run by the healthcare branch of Sime Darby, the very same corporation that is a dominant player in the palm oil industry. Their online information page acknowledges that "weighing more than what is emotionally and physically healthy is increasingly a problem for Malaysians" (Sime Darby Healthcare Online). They go on to cite a statistic claiming that 95% percent of non-surgical weight loss methods fail and recommend, "if nothing you have done is

helping your weight problem, surgery may be your best option” (Sime Darby Healthcare Online). Clicking on this link redirects to another informational page that outlines surgeries ranging from gastric bypass to laproscopic adjustable gastric banding. Rather than acknowledging that other branches of the Sime Darby corporation may be playing a role in the recent obesity epidemic, Sime Darby has found an additional way to profit. Essentially, Sime Darby is extending the global food value chain to include treatment for the diseases resulting from high-fat diets the company perpetuates.

At the same time as private companies are becoming involved in the healthcare market, the Malaysian Ministry of Health (MIH) is using quite different tactics to improve the health of Malaysian citizens. In an effort to combat growing rates of obesity, the MIH has promoted a publication outlining “10 Key Dietary Guidelines.” The publication advises individuals to be active everyday, limit intakes of foods high in processed fats and to use oils sparingly in food preparation (Malaysian Ministry of Health 2010). The MIH has also advised Malaysians to consume less sugar by checking processed food labels for sugar content and consuming fewer sugar-sweetened beverages to lower their risk for diabetes and other noncommunicable diseases (Malaysian Ministry of Health 2010). In addition to public awareness campaigns, the MIH has recommended that the MITI branch of the government stop pursuing policies that artificially lower the price of sugar. If the price ceiling and sugar subsidies were removed, the refineries would have to raise the prices of plain refined sugar as well as high-sugar processed foods and beverages. Ideally, this price increase would dissuade some Malaysians from consuming sugar so often (Teoh 2012). The MIH has also recommended a ban on fast food advertisements on television during prime children’s viewing hours (Singh 2007). Arguing that these advertisements can lead to unhealthy eating patterns in children, the MIH hopes that reduced visibility of these products will help to reverse the pattern. The government is essentially identifying intervention points in the global food value chain in an attempt to reduce the availability, affordability and desirability of processed foods.

These two methods of combating diet-related diseases in Malaysia are representative of two possible paths forward for combating the rising rates of noncommunicable disease around the globe. The first path involves the expansion of private companies as they work to provide healthcare for individuals afflicted with these noncommunicable diseases. The second path involves governments and outside institutions pursuing interventions in the global food value chain in an attempt to improve diets and prevent the development of noncommunicable disease. In the long run, policies that result in the prevention of these noncommunicable diseases will be better for the overall welfare of individuals in Malaysia and other developing countries around the world.

Future GVC Research

The idea of pursuing interventions in the global food value chain to improve nutrition patterns and prevent the development of noncommunicable disease has gained traction in nutrition literature in recent years. Interestingly, these intervention points are best identified using a global value chain perspective. Rather than simply using GVC analysis to explain how TNCs have contributed to the nutrition transition, GVC analysis can be used to identify ways in which TNCs can help to improve local consumption patterns. A strong advocate of using a value chain perspective to improve nutrition and health outcomes is Corina Hawkes. She outlines two major nutritional goals that value chain analysis could address. The first goal is to “increase the

supply of healthy, available and affordable food to the poor all year round” (Hawkes 2011, 13). To accomplish this goal, it is necessary to identify supply-side interventions. First, value chain analysis can be used to understand why certain foods aren’t available at affordable prices. For example, some nutritious foods may be unavailable because they are not cost-effective for the producers. If this is the case, financial incentives or government subsidies for cost-saving technology could help encourage companies to produce more nutritious foods. Other nutritious foods may be unavailable because of communication constraints in existing value chains. Policies to reorganize the value chain could help increase coordination between crucial actors, allowing producers to increase the availability of nutritious food. As shown throughout this paper, strong coordination within a value chain can also reduce costs, so reorganizing the chain should increase the affordability of nutritious foods for consumers. Secondly, value chain analysis can track the nutrition of foods throughout the supply chain to identify points where nutrition is being lost. TNCs have already invested millions in R&D, so it would be very possible for them to invest in technological or scientific advancements that could minimize this nutritional loss or find ways to add it back in. Again, government policies such as the provision of financial incentives might be a feasible way to encourage TNCs to invest in nutrition-focused technology and supply more nutritious food options. In combination with government policies, pressure from public advocacy groups can be a helpful intervention. Although advocacy groups cannot necessarily change the actions of TNCs on their own, they can put pressure on the government to implement stricter policies that will encourage TNCs to provide more affordable, nutritious food.

The second major nutritional goal that value chain analysis can address is “to increase the demand for nutritious foods among the poor” (Hawkes 2011, 14). To accomplish this goal, it is necessary to identify demand-side interventions. Value chain analysis can be used to understand how TNC marketing campaigns have changed consumer preferences for certain foods and identify policies to reverse this trend. The proposed government ban on fast food advertisements during prime TV viewing hours in Malaysia is an excellent example of this type of intervention. Public advocacy groups could also create their own advertising campaigns aimed at increasing the desirability of nutritious food options. If consumers were exposed to more nutritious food advertisements than processed food advertisements, cultural norms could shift and consumers could start demanding these more nutritious options. Value chain analysis can also identify points of misinformation about the nutritional content of frequently consumed foods. If any TNCs are found capitalizing on misperceptions about the nutritional value of their food, the government could implement sanctions and force TNCs to reveal the true nutritional content of their products. If the problem is simply a lack of awareness, the government could sponsor educational programming to teach all individuals about the importance of nutrition. Similarly, public advocacy groups could use large educational campaigns to increase awareness about the negative health consequences associated with high-fat, high-sugar diets.

Both governments and public advocacy groups have the power to implement supply and demand side interventions in the global food value chain. Ideally, if all four of these strategies were pursued simultaneously, TNCs would be strongly encouraged to increase the availability, affordability and desirability of nutritious foods in place of unhealthy foods. One example that provides hope for these kinds of interventions is the current backlash against trans fat in the United States. On the demand side, public health advocacy groups have sponsored initiatives to educate individuals about the health dangers of consuming high amounts of trans fats. From a government perspective, the Center for Disease Control (CDC) has advised individuals to limit

their intake of trans fats. These efforts to increase consumer awareness have been coupled with supply-side interventions. Public advocacy groups, such as the Center for Science in the Public Interest have spent ample resources petitioning the government to ban the use of trans fat in food altogether (CSPI 2011). Although that petition was unsuccessful, in 2006, the US government did mandate that all processed food products include trans fat content on their nutrition labels. In the wake of this policy, several global food manufacturers stopped using trans fat in an effort to make their products desirable to increasingly health-conscious consumers (Christian 2010, 447). Global food manufacturers that have eliminated trans fat from their products now use it to their advantage, advertising products as “trans fat free” and encouraging greater consumption for health reasons. Other supply-side interventions include the recent bans on trans fat in restaurant cooking in New York, California, Baltimore and Philadelphia. The bans have forced local bistros and fast food chains alike to make significant changes in their food preparation (Leuck 2006). Because it is not cost-effective for companies to purchase trans-fat free cooking oil for only a few states, several chains including Wendy’s, Burger King and KFC have pledged to eliminate trans fats from their products around the nation (CDC 2012). A study published by the CDC in 2012 showed that average levels of trans fat in the blood of adult Americans fell by 58% between 2000 and 2009, suggesting that government and public advocacy interventions have been successful (CDC 2012). Although this is only one example, it shows the power of value-chain based interventions in changing nutrition patterns. While these kinds of interventions will clearly not change the entire global food market or consumption patterns overnight, they are important steps in the right direction. Because TNCs have come to play such a dominant role in global food value chains as well as consumption patterns, it will be important to attempt to use their power to positively influence diets in the future.

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