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FOOD MARKETING AND OBESITY: A PUBLIC POLICY AND CHANNELS PERSPECTIVE

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Abstract

Market failures are defined as being free markets, operating without any government intervention, that fail to deliver an efficient allocation of resources. This paper argues that the obesity epidemic is indeed the result of market failures by considering inner-forces of food marketing channels. Many analyses on obesity have adopted a micro orientation in keeping with traditional marketing management. A marketing channels perspective on obesity is evidence for the necessity of breaking the whole down to manageable parts for study and analysis before attempting to gain an understanding of the functioning of the marketing process as a total system. Modernism and sedentary lifestyles may have contributed to the obesity problem, but, as is shown in this paper, so have a number of channel drivers within the food supply chain. Five distinct categories of channel drivers are presented in this article. These are (1) transversal drivers; (2) farm-related drivers; (3) manufacturing drivers; (4) food retailing drivers; and (5) out-of-household consumption drivers. This paper also makes recommendations for policy development, and future research suggestions are presented.

Key words: obesity, obesity drivers, marketing channels, public policy, market failure.

Introduction

Can we consider the obesity epidemic as the result of market failures? Marketing theory suggests that a new product will not be introduced unless it is profitable for the innovator to do so. Its adoption should become welfare enhancing. The obesity epidemic may be a possible exception to this generalization, since the introduction of many food products is viewed as creating negative externalities while satisfying short-term needs. There are more obese and morbidly obese people and diabetics in developed countries than ever before (Minkus-McKenna, Ashman and Moskowitz, 2004). In fact, it is estimated that over 300 million people worldwide are affected by this health hazard. The total cost in health care expenditures of obesity is estimated to be over \$50 billion US. In 2003, one out of every two consumers in modern economies between the ages of 20 and 64 years were either overweight or obese; this is more than double the 1985 figures (Macdonald, 2003). Obesity, which is on the World Health Organization's list of main health concerns, is poised to surpass smoking as the principal preventable cause of death. Various causes have been suggested to account for global obesity, such as genetics, a general lack of physical activity, and simply modernism (Lowell, 2004). However, the obesity phenomenon in the industrialized world is a complex problem involving multiple factors.

The food industry is faced with a market at maturity, with very little possibilities for growth. Dietary preferences have changed considerably in the past few decades. Fast food outlets, frozen foods, and prepared meals at supermarkets now offer consumers alternative choices that were not as omnipresent in the past. The percentage of meals eaten away from home has been steadily increasing and now accounts from between 40% to 50% of all meals consumed (Brownell and Hodgen, 2004). The food supply in industrial economies is often very reliable, affordable, and abundant. As a result of these food preferences by consumers, the structure of consumer food channels has changed significantly in the last three decades in terms of how food is supplied to consumers and when and where food is consumed and by whom.

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Obesity has attracted the attention of social nutritionists, health and food specialists, agricultural economists, and marketing researchers, as well (Clark, 1943; Smith, 2003; Seiders and Petty, 2004; Yach and Marks, 2004). Some government officials have declared obesity to be an important societal problem to be reckoned with. In fact, many scientists classify it as an epidemic (DHHS, 2001; CDC, 2003).

A study of various factors that have contributed to the obesity issue is warranted. This conceptual paper looks at the obesity question from a channels perspective to determine how food supply chains may have contributed to the obesity health issue, an issue that has worldwide implications. We first revisit marketing channel literature and justify such a framework to study obesity. We then define the nature of a market failure and elucidate how it could relate to the obesity epidemic. That is, the paper examines the operational dynamics of the social and structural dimensions of the food industry. The analysis in this paper includes, but is not limited to, the dynamics of power, conflict, inclusion or exclusion, and consequent benefit or profit for and between channel members. This analysis also allows for consideration of current food-related public policies and their impact on channel members' behavior. Although many other factors not mentioned in this paper have contributed to the obesity epidemic, a distribution perspective articulates a starting point that can be used in analysis and clarifies the consequences of using any particular starting point. Due to the complex and global nature of obesity, the analysis is not limited to any one country.

Finally, this paper is not an attempt to undermine the importance of public policies that affect physical fitness, health care services, and/or the role of the pharmaceutical industry, with its weight reducing drugs. Rather, this paper is intended to look specifically at the impact of public food policies that influence the flow of food products across marketing channels.

Why a Marketing Channel Perspective on Obesity?

Channels are among the most complicated phenomena encountered in an advanced economy. They are elaborate economic, political, and social systems involving many decision makers (McCammon, 1965). When the academic study of marketing was first initiated at the turn of the 20th century, channel, also known as distribution, was the subject of predilection (Sheth, 1983). Perception among consumers emerged when the commodity retail prices they were paying for agricultural products were unjustifiably high. Profound sociological transitions led to mistrust and confusion between rural and urban areas. Consequently, more elaborate marketing channels were required to bring food products to city homes (Weld, 1917). As time went on, more intermediaries arose in the process of exchange so that efficiency of the process could be achieved, and specializations within the marketing channel were promoted (Alderson, 1949). Still, today, sociological and economical challenges similar to obesity create puzzlement in modern societies and compel scholars to better understand the complexities of such contemporary quandaries.

Marketing channels perform the task of physically moving goods from points of production to points of ultimate use (Phillips, 1962). When studying marketing channels, time and place utilities are of great importance so that exchange can occur. For example, the beef from cattle slaughtered in June is destined, in a matter of weeks or even perhaps days, to be consumed as steak or hamburger meat. To bridge this gap in time and place is to create utility for both supplier and consumer. Processing plants, distributors, and retailers get involved in the process by helping to create time and place utility through storage, credit, and so forth. All of these activities are facilitated by the existence of marketing channels. This begins to elucidate the idea that the complex relationships involved in the total marketing process are indeed myriad. It points out the necessity of breaking the whole down to manageable parts for study and analysis before attempting to gain an understanding of the functioning of the marketing process as a total system (Beckman, 1970).

Since obesity has been at the forefront of attention many scholars, in their analyses, with few exceptions, have adopted a micro orientation in keeping with traditional marketing management. Little attention has been given to the evolution of marketing channels as competitive entities. Moreover, no consideration has been given to social systems that are inherent to marketing channels. There-

fore, the study of obesity through marketing channels allows for a better understanding of the behavioral aspects of distribution channels and the intra channel sociopolitical factors (Stern, 1969). In this paper, these forces are referred to as drivers. Sociopolitical factors are specifically the patterns of power and dependence relations and the sentiments and behaviors that typify interactions between channel members (Stern and Reve, 1980). Outcomes of these interactions bear a great deal on the interface between marketing and public policy related to obesity.

Market Failures and Channel Drivers

Many scholars have considered the obesity epidemic as the result of many market failures (Mazis *et al.*, 1981; Seiders and Petty, 2004). Market failures are defined as being free markets, operating without any government intervention, that fail to deliver an efficient allocation of resources. The free market refers to a group of people involved in the voluntary exchange of goods and services. It presupposes that each individual participates to pursue his or her rational self-interest and that a government exists to protect individual rights, including property rights. At first glance, obesity is hardly the result of a market failure. Consumers are hungry and buy food to satisfy their hunger. A free market does not certify that any consumer will act in rational self-interest; therefore, errors are probable. If the activities of some market participants harm others, then it is the government's failure to protect individual rights, but it cannot be considered as market failure.

Yet, it seems as though consumers are unacquainted with the modern realities of world markets and their impacts on domestic food supplies. There is an underlying obesity paradox that would suggest the presence of market failures. Life expectancies around the world are increasing, and many consumers who attempt to adopt healthy lifestyles are still gaining weight (Jeitschko and Pecchenino, 2006). Sheth and Sisodia (2005) suggest that the power of market forces and that of marketing to outline virtually every feature of a society's customs, attitudes, and culture should not be undervalued. In food distribution, legislation and regulation are hardly obstacles to misleading and deceiving marketing practices. Some of these market forces are articulated through the architecture of food marketing channels.



Fig. 1. Channel Drivers Obesity

Within a channel, there are numerous factors (*i.e.* drivers) that contribute to the growing obesity problem (Figure 1). Some of these we refer to as transversal drivers, farming-related obesity drivers, manufacturing drivers, distribution and retail drivers, and out-of household and consumption drivers. Within each one of these drivers, there are contributing factors as well.

A. Transversal Drivers

One important transversal driver is information imperfection. Most economic models assume, implicitly or explicitly, that stakeholders have adequate information for rational decision-making. As defined by Liddell and Bailey (2001), a channel habitually has the capacity to track all inputs used to make food products backward to their source of origin at different levels in the food channel. When a traceability system is in place, information is available to consumers on all practices and procedures used to produce a particular food product at each level of the supply chain. Such information can be disseminated to the public through proper food product labeling.

As consumers want more product information, many pressure groups are pushing for more comprehensive food labels. Other economic models have suggested that product information is an element of market structure and may influence market conduct and performance (McCammon, 1965). As the number of intermediaries increases, information sharing between levels of a marketing channel becomes more multifarious. Logistical and cost concerns created by the operation of an efficient food traceability system have convinced some researchers that rigorous food labeling regulations are easier to implement than regulating food content (Strychar, 2004; Krebs, 2004). It has been shown that when provided with favorable nutritional information, whether from labels on products in a retail store or in a restaurant menu, consumers generally have a favorable attitude toward the product and see the risk of future health problems to be lower (Kozup, Creyer and Burton, 2003). As people become more knowledgeable about food-related disease, consumers may likely believe that they can prevent future health problems through proper nutrition (Szykman, Bloom and Levy, 1997).

Nevertheless, classic economic models suggest that consumers have limited abilities to encode the options and the information associated with available options (Simon, 1957). It is also recognized that market information may influence structural dimensions such as concentration, entry conditions, and product or enterprise differentiation (Devine and Marion, 1979). Inequalities of resources amongst market participants appear to generate undesirable information for consumers, as they are unable to express accurately their preferences in the market place and choose rationally among products in retail food stores. This phenomenon can be explained by the fact that increased market information erodes elements of market power for suppliers. An under-informed market is likely to create a shift in competitive emphasis. When nutritional information on products is scarce, consumers are expected to rely greatly on non-product factors such as store location, cleanliness, selection, and customer service, or suppliers may choose to compete based on product proprieties unrelated to nutrition such as packaging, price, portion size, and taste.

Proper food labeling is dependent on having a homogeneous and efficient identification system for all livestock and agricultural commodities in a given country. Such a system enables food distributors to provide all the necessary information consumers require before purchasing a food product. Even though information overload might distort the capacity of consumers to process data, increased product information is expected to effect positive consumer satisfaction. Product information should reduce search time and uncertainties experienced by consumers.

On the other hand, economic theories state that product information reduces the level of prices (Henderson, 1975). When adding more nutritional information on labels is discussed, two codes of belief conflict: suppliers need to compete differently, and consumers seek for more satisfaction. This does not necessarily mean that consumers will switch their consumption away from unhealthy products to more healthy alternatives, as consumers are generally drawn to lower-priced products (Teisl, Bockstael and Levy, 2001). Although privately produced, prices are publicly displayed on counters, shelves, and advertising pamphlets everyday. Retail prices are neither confidential nor private information. Thus, imperfect information means socially desirable goods that

provide consumer satisfaction are under represented on the market while socially undesirable goods are over represented, a fundamental premise that can lead to market failure. In other words, when looking at the food system as a whole, to coerce channel members into offering supplementary product information to consumers is a treacherous competitive terrain, and current policies hardly ever look at other possibilities.

A second transversal driver is referred to as power asymmetry. Some researchers argue that the food industry regularly lobbies several government departments, universities, and professional organizations to gain credibility, power, and control. Their agenda, according to some, is to promote sales and consumption of their foods and to minimize health concerns (Willett, 2002). Conversely, governments too are actively seeking for public trust and credibility, and are concerned with product adulteration and fraudulent market information and are inclined to favor nationwide uniformity of standards. Improved rationality in government policy is intended to address cases of market failure or undesired market outcomes. With no government intervention, the political process behind food distribution systems can be capricious, and homogeneous regulations minimize production costs for suppliers by requiring less information gathering. Less information also means that consumers require less skill and knowledge to comprehend food offerings. The political process behind food distribution leads to the concentration of power and results in market dominance and abuse of power by which trust and credibility are used as leverage. The application of power is often done through lobbying by market participants and regulation by governments.

Power asymmetries lead to more control and influence by certain market participants. Suppliers have argued that by providing more choices, consumers would gain power and more feelings of control. However, evidence is showing that consumers' welfare is negatively affected by choice proliferation, thus endowing consumers with less power and influence (Botti and Iyengar, 2006). In the last few decades, corporate welfare seems to favor choice, and mostly, power. Market failures occur when less powerful participants in the food system are dependent upon relational outcomes between governments and power holders. The target beneficiary of such outcomes is rarely the food system as a whole. Nonetheless, the nature of this power asymmetry differs in markets based on how much industrialization has occurred. Unequal influence and control remain an issue in markets where industrialization has not taken, but the market information is usually richer. In industrialized markets where corporate democracy is perceived to be more prominent, public reporting and monitoring are often more intricate because of power shifts amongst market participants and because of logistical complexities.

In addition, power asymmetries are also the result of a multiplication of vertical integration schemes across marketing channels. Vertical integration has helped many companies within the food industry to produce more food at a lower cost. Often defined as the combination of two or more stages of a production-marketing chain under single ownership, vertical integration creates efficiencies by substantially reducing transaction costs among members of a supply chain (Coughlan et al., 2001). It also provides economies of scale and enhanced sharing of information that can, in turn, generate greater innovation and differentiation. Vertical integration can also offer better defense mechanisms against foreclosures and more evenly distributed risk allocation across the supply chain. However, vertical integration both consumes a substantial amount of capital and reduces managerial flexibility between levels of the supply chain. Many levels of the marketing channel have applied vertical integration strategies, but these have had a greater impact at the production level. The rigidity of the industry's structure, the differing managerial requirements between echelons of the supply chain and recurring bureaucratic distortions have proven to be hard to administer. Nonetheless, most vertical integrators in the food industry are very profitable and likely become commanders of their own marketing channel, by which one channel member of a given product or brand stipulates marketing policies to other channel members (Beckman, 1970). A commanding function within a channel enables a member to dictate what product will be pipelined to the consumer. If marketing obesity-friendly products does not merge with the commander's marketing know-how, geographically concentrated market outlook, current vertical and even horizontal channel structures, or economic and financial strengths, it is unlikely to happen.

Information imperfection limits consumer choice in selecting more healthy foods. At the same time, power asymmetries also dictate the limitations on access to healthy alternatives. Consequently, this constitutes a market failure that is a contributing factor in obesity.

B. Production Drivers

Another important driver of obesity, significantly remote from consumers, is related to farming and production of commodities. Unlike other levels of the channel, farmers are known to have relatively static expectations, in a sense that they are habitually uninterested in opportunities for growth. This difference in entrepreneurial philosophy or point of view partially explains the conflict inherent in many channel alignments (McCammon, 1965). Farmers are mostly interested in local market conditions and adhere to market orientation dependency, whereas manufacturers have usually a more national and regional market orientation. Most farmers still believe themselves to be part of a given agricultural sector, and not part of a broader food industry. A philosophical dichotomy lies between farming as a level of marketing channels and all levels.

Other factors create conflict in channels. The urban areas of society are divorced from the daily realities of farming and industrial agricultural production (Murphy-Lawless, 2004). For urbanites, the modern disconnection with "nature" has created a mythology around the concept of agriculture, and since less than 2 percent of the industrialized world population lives on farms, very few consumers truly recognize the complexity of modern agriculture. Without consumer consent, public policies in many developed countries focus on providing more revenues to farmers and providing consumers with inexpensive food and benefits of choice (Critser, 2003).

For example, in the 1970s, in countries blessed with natural resources, governments liberated food growers from strict agricultural regulations and initiated programs to subsidize mass production, creating surpluses of inexpensive grains, such as corn and soybeans. In the context of accommodating low-income populations, such a lax policy appears to make common sense. However, in 1971, with an excess of corn production around the globe and prices of sugar increasing rapidly, food scientists in Japan were enabled to create a cheaper sweetener called high-fructose corn syrup or HFCS. On the surface, this seems a productive outcome – a highly marketable use of excess agricultural products and a new market to support continued production, and this outcome continued to hold sway; even when many studies demonstrated that fructose was more damaging to human health than natural sucrose, many food manufacturers went ahead and added HFCS to their products (Critser, 2003; Mayers, 2003). Meanwhile in the 1980s, many commodity prices were down, and food manufacturers were making more profits. Consequently, companies such as Coca Cola and Pepsi switched from a fifty-fifty blend of sugar and corn syrup to using high-fructose corn syrup exclusively. That decision reduced sweetener costs by 20 percent and helped these companies increase portion sizes so that they could still make substantial profits (Risvik and Schifferstein, 2001; Critser, 2003). The principle that the provision of choice yields valuable outcomes for both consumers and society in general is inherent to basic marketing practices (Botti and Iyengar, 2006). By lowering some commodity prices, choice proliferation for consumers is arguably enhanced. However, as in the case of HFCS, taking advantage of a change in a market channel to provide consumers with greater economic choice and value can lead to reduced choice in availability of nutritional alternatives plus decreased capacity to manage such choices as portion size.

Ultimately, not all commodities offer more choice to consumers. Many studies have identified poverty and low-income as key determinants of obesity and weight-related disease. Therefore, such food subsidy programs as those that lead to the proliferation of HFCS may have compounded the obesity problem, especially in low-income consumers (Critser, 2003). For consumers, the cheapest sources of calories are fats and sweeteners. Although this is a complex problem, low-income households often have unsound dietary food habits such as consuming low price but high fat and high sugar foods. High-income households can afford to seek more nutritious and healthier foods. Of course, they may not always do so. Thus, limiting fat intake increases the cost of a proper diet (Finke, Tweeten and Chern, 1996; Risvik and Schifferstein, 2001). Agricultural subsidies in many industrialized countries have been able to lower the cost of food energy, but they

have increased the price of more nutritious foods, driving the most vulnerable consumers to poor nutritional choices as a function of household economics.

In Europe, the mass-production model for farming came into existence in 1947, when it became government policy to provide inexpensive foods for farm animals, a policy that agricultural industries around the world have subsequently embraced. These methods are now being adopted in developing countries as well. Agricultural industries in these countries are starting to build efficient infrastructures. Many of them are capable of competing against richer countries that were blessed with resource abundance. Overall, agrifood globalization is having a profound impact on world agriculture, in particular on food supply chains (Farrell, 2004). With their cost advantage over industrialized countries, developing countries have shown tremendous growth in the production of agricultural commodities. Many developed countries, on the other hand, are facing difficulties keeping up with worldwide trends towards low-cost production, coping with the growing agricultural forces from developing countries, and responding to the better use of agricultural inputs in order to maintain low prices. Farming industries in many countries can no longer rely on a weak domestic currency to compete and to sustain exports (Morrison and McDonald, 2003).

The industrialization of farming methods has had a significant influence on food supplies provided to consumers. Today, the percentage of a family's income spent on food is below 10% vs. over 70% in the past. This 70% is comparable with the percentage now spent in less affluent countries. For many reasons, modern economies have almost trivialized the need to invest in food consumption. Prosperity, the good life, and less active lifestyle may simply generate more overweight individuals. In response to the industrialization of farm production methods, many farmers are now considering civic agriculture rather than embracing the commodity-driven agriculture that has been very prominent in the last decades. Although it is rarely done, farmers selling directly to consumers represents the simplest channel structure possible. Civic agriculture enables farmers to market their commodities directly to consumers, whereas commodity agriculture relies more on economies of scale, efficient coordination between links in the supply chain, and higher profitability. This form of direct marketing allows farmers to appreciate consumer concerns such as obesity. Commodity agriculture has had the effect of decreasing the number of farmers and increasing the average size of a farm in many developed countries (Lyson and Gupitill, 2004). This trend has changed the structure of the agribusiness model for commodities. A supply chain will rarely find itself committed to rural communities, as most food distributors focus their sales and marketing efforts on urban centers. In addition, due to a mounting rate of industry concentration, more food is supplied by fewer farmers. As a result, obesity is far from being a priority for farming.

Countries with supply management boards, such as many European countries and Canada, have seen certain commodity prices increase at a faster rate than domestic consumer price indexes. Such marketing boards control supply by assigning output quotas to individual producers. Thus, they control not only individual producer output, but also entry into the industry, as well as the fixing of prices for ultimate buyers. Many developed countries and most developing ones have such marketing boards. Many countries have voluntary price support programs, marketing agreements, and marketing orders. Price-fixing mechanisms and supply-restricting quotas under marketing boards have resulted in higher consumer prices for essential commodities such as milk, eggs, and poultry. Such price increases have often been seen as unwarranted (Loyns, 1980). However, such government-legislated agencies have escaped the public's eye, despite the fact that their economic role and their effect on consumer food budgets have been subjected to the same level of transparency and social scrutiny as other public agencies. The same argument applies to any other producer support program or subsidies the industry receives from all levels of government around the world. Many countries are trying to control the uncontrollable in order to protect the agricultural sector. Control is often achieved through opportune stratagems like tariffs and subsidies. In order to deal with world market uncertainty, the European Union pays about 55 billion \$US a year in farm subsidies, and Europe has been unwilling to reduce tariffs that restrict access to European markets. Through the American Farm bill that the U.S. Congress authorized in 2002, 200 billion \$US was shifted to traditional funding programs, which resulted in overproduction of many commodities. As a result, an abundance of supply resulted in a global devaluation of crops.

Farming, historically, has strived, in vain, to achieve mutually acceptable objectives with other channel members. Goals remain incompatible since farming has significantly divergent aspirations. However, perceived mutuality of interest, however slight, is a basic characteristic of marketing channels. Farmers, who are part of an organized behavior system, called a marketing channel, should recognize that obesity is a societal problem. In the industrialized economy, irrefutable public policies on obesity that empower farmers on that exact issue have not hitherto come about.

Production drivers of obesity, therefore, result from a complex relationship between agricultural management, particularly with respect to the market artificiality that can result from subsidization and the focus of farmers on production and commodities marketing rather than on manufacturing and consumer end-use, and production practices that value commodity development and maintenance and economic savings over nutrition, setting consumer trends toward choosing larger portion sizes and foods of lower nutritional value. The combination of production trends and the consumer trends they lead to results in a limitation in the availability of more nutritional foods, and, therefore, a market failure.

C. Manufacturing Drivers

Most companies that manufacture food products are publicly traded multinational corporations. Nestlé, Tyson Foods, Kraft, General Mills, PepsiCo, and ConAgra are all conglomerates that sell many brands. They have considerable market power, despite their few numbers (Brownell and Horgen, 2004). They have the power to create trends, use the clout of branding, forecast food-consumption behavior, and combine marketing efforts. Food spending as a proportion of average income for any given household has fallen from 34% in 1946 to just 11% in 2004. Most consumers in industrialized countries are not willing to spend more on food supplies. Reliable indicators of food expenditure show that this percentage is bound to decrease over time. This trend, evidently, has pressured stakeholders in food manufacturing to keep the cost of production and distribution low.

Processed food companies have had to adapt to the new global reality of marketing food products. The world's food supply is in transition more than ever before. Multinational food processors, in particular American companies, have embraced the concept of trading in a borderless world. Over the past decades, globalization has not only had an incremental effect on consumers' diets across the world, it has diversified the offerings of calorific goods for consumers in many countries. For instance, Brownell and Horgen (2004) report that U.S. companies like Coca Cola and PepsiCo are now selling in more than 200 countries and carry more than 230 brands each. Schlosser (2002) also states the high fat and sugar content of such imported food products fuels the rising epidemic of obesity.

Food manufacturers have also concealed ingredients in food products for higher profitability and efficiency. The case of trans fats is one good example. Trans fat, found in hydrogenated vegetable oil, became widely used when the link between saturated fats and heart disease became evident some thirty years ago. However, for consumers, replacing saturated fats with hydrogenated oil has unfortunately amounted to replacing one unfriendly fat with another. Legislation in recent years has forced manufacturers to significantly reduce the amount of Trans fats in products. Manufacturers have, however, been lured into using trans fats, despite their goal of getting rid of saturated fats. For one, trans fats are known to extend a product's shelf life and thus can enhance economic efficiencies for food retailers. Although novel packaging technologies can help improve shelf life, their effectiveness is considerably limited compared to trans fats. Another reason trans fats are so widely used is that hydrogenated oils are very convenient and, in a sense, aesthetically appealing, as they create tender, creamy, good tasting, and radiant-looking foods. Trans fats also help control the temperature at which foods melt. All in all, the virtues of trans fats are undisputedly high for food manufacturing. Some consumers might feel indifferent towards the addition of such an ingredient in many food products, while others might find that even the mere presence of trace amounts of an unwanted product may be unacceptable. Whether consumers, now well informed of their dangers, choose to continue to eat foods containing such fats, their wide use in many manufactured food products represents one means by which manufacturing has become a driver in obe-

sity in that the means to offering consumers lower-priced products is to reduce manufacturing costs via avenues that, unfortunately, as a consequence of fat and sugar being the least expensive materials in food manufacturing, are likely to lead to increased caloric intake. Benefits for consumers are still indistinguishable, and this may be a driver to obesity.

Packaging can also play a role in increasing obesity. For example, in 2002, Frito-Lay launched its line of Go Snacks, Doritos, Cheetos, and Fritos, which can be purchased in plastic containers the size and shape of a water bottle. At the time, Frito-Lay was claiming that the new packaging fitted consumers' fast-paced lifestyles (Karoly et al., 1998, Brownell and Horgen, 2004). However, increasing the convenience of packaging increases its availability and consumption and, unfortunately, high fat and high sugar snacks are, by their very nature, cheaper and easier to package. Packages also have become outsized. Larger packages are perceived as bringing lower unit costs from larger containers (Wansink, 1996), and many food manufacturers are supplying mass merchandisers with products that support bulk purchasing. A counterargument is that high-volume packaging creates an externality in the market for low-volume luxury food products because experience with high-volume products reduces the demand for low-volume luxury food items. This counterargument assumes that consumers cannot adequately distinguish between low and high quality. Quality is either costly to detect or the assessment is uncertain. Therefore, the most effective assessment process for consumers is mainly quantitatively based. Marketing strategies of food manufacturers are relying on size to provide value for consumers. In other words, consumers are looking for measurable value in their food purchases and, with reduced options for choosing nutritional value due to blurred lines between the qualities of products, consumers are viewing economic value as an alternative, a trend promoted by bulk packaging. Again, in striving to meet consumer demand for more convenience, food manufacturers have turned to bulk packaging, which is simply only conceivable with high fat and high sugar goods. At the same time, by pursuing this strategy, which has been so successful, manufacturers are limiting choice and influencing consumer habits by reducing the availability of high quality, non-bulk products. By offering quantitative value to consumers, qualitative value is reduced.

Food manufacturers have been responding in recent years to increased concerns about obesity rates and the marketing of high fat, sugary foods by developing new, more healthful foods and beverages. However, despite the gains made in the introduction of more healthful foods, candy remains the leading new product category (Eagle *et al.*, 2004), due, in large part, to consumer demand for convenience but also due to the ease with which such products can be manufactured, marketed, and sold. At the same time, such choices remain high among consumers because of their convenience of price and packaging, among others. Again, consumer demands, as lead by manufacturing drivers, and vice versa, result in lowered availability of healthier alternatives, and therefore, market failure.

D. Distribution/Retail Drivers

Food retailing is an important part of the entire marketing process, as it creates time, place and possession utilities. Place utility brings hundreds of thousands of accessible goods, in many cases, conveniently delivered to consumers. Time utility is offered when food retailers store goods by anticipating consumer wants. What is unique about food retailing is its substantial contribution to possession utility, by which it transfers the ownership of a good that has no use for an organization to consumers for whom it is a meaningful good, since credit is rarely used in food retailing today. Consumer purchasing is an end in itself. With food retailing, there is a sense of immediacy, where most purchases are made to satisfy short-term needs. Unlike other levels of the channel, consumers initiate the marketing contact and food retailers are constantly in a reactive mode (Alderson, 1949; Beckman, 1970). The opportunity to serve oneself quickly relieves the consumer from some distrust or dependence upon salespeople. Nevertheless, it brings forth another dimension of dependence, where consumers rely on information provided through merchandizing, store refinements, and other services to make nutritional decisions. Contemporary consumers have implicit confidence in many of the brands and goods offered in food retail stores.

Of late, food retailing in many countries has undergone major changes. Because of an array of consolidation strategies, the functions of distribution and retailing within a channel are increasingly executed by the same corporation in industrialized countries. Retail channel members are arguably in an authoritative position within the supply chain because of their control over suppliers (Verner, 1992). Power is gained through the wealth of information they have on consumers' prospective demand. Having access to real-time data through enhanced technology, food retailers deal with increasing variety and complexity in consumer demand, leading to divergent consumption patterns.

Food retailers have also proved to be equally dynamic and innovative over questions related to their own organizational approach to retailing. From the adoption of self-service, supermarket retailing, and the development of still larger superstores, computerization, stock control systems and sub-contracting out of warehousing and distribution in the last century, the modern supermarket retailer has been prepared to rapidly develop new organizational approaches. Food retailers have, in sum, proved capable of extending their capabilities, routines, and idiosyncratic knowledge both forward into retailing aspects of the grocery trade and backwards into the food manufacturing and wholesaling trades as a whole. When market prices are unstable, food retailers can refuse to buy a particular product because of the wide assortment of agricultural products offered to consumers. In addition, retailers can pass on any price increases to consumers, given their restricted numbers in the channel. With respect to manufacturers, retailers possess a significant amount of influence in the food supply chain.

Many places in the world experience higher food prices than the prices consumers pay in urban and populous areas. Food distribution and the structure of the supply chain are often to blame for price differences in remote areas (Aalto-Setälä, Kinunen and Koistinen, 2004). In developed countries, many food distributors have established stores in remote or suburban areas to expose their offerings in mass merchandising hubs, known as manufacturing outlets. The market purpose of these hubs is to bring customers to one strategic point and entice them to buy in bulk many types of products. This strategy has transformed the way consumers shop for their food. Mass food merchandisers (e.g. supermarkets, big box stores, warehouse clubs, combination super centers) gained popularity, while smaller food retail shops lost market share.

Not all social groups, however, have been able to take advantage of the growth of large-scale super stores incorporated into modern mass merchandising hubs, as the marketing strategy was aimed at car owning households (Ellaway and Macintyre, 2000). Bulk buying of food products to generate potential savings requires a car, and most low-income consumers are less likely to own a car. Therefore, disadvantaged consumers have lost the most from the food retail revolution, where few smaller independent stores have been unable to compete against the almost limitless resources of multinationals (Westlake, 1993). For low-income consumers, notably those located in inner cities, easy access to food stores is more important than food purchase savings. For high-income earners, accessibility to food stores is far less important than the price of food products (Henson, 1992). Bulk-purchasing practices by high-income consumers has contributed to an expectation of longer-shelf life rather than shopping more frequently for fresh foods. Such behavior has an impact on the nutritional choices of consumers. In the case of low-income consumers, reduced retail outlet options have forced similar shopping trends toward the least expensive items, which are generally the least nutritious.

Many other factors contribute to the dietary deficiencies of less affluent inner city consumers, such as low level of education, lack of employment opportunities, one parent households, larger family size, limited storage facilities, thus requiring frequent food purchase, and lower credit availability, as well as unavailability of certain ethnic foods at mass food outlets located in the suburbs, among others. To say that such poor consumers buy less wholesome foods out of necessity is a rather naïve explanation for a more complex social problem, as shown by Hill (1995), among many others, who have researched the food shopping habits of inner city residents.

In-store merchandising displays can also be identified as a driver for obesity. Food retailers have focused their strategy on readily available end-of-shopping candies at cashiers (Eagle et al., 2004).

Most of these highly calorific products are low-priced and somewhat tempting for consumers shopping in a state of hunger or for impulse buyers. Food retailers have made it easy for consumers to purchase snacks in stores, as they have made displays at cashiers and at the end of many aisles very tempting for consumers. Snacks are an important industry and a key link to obesity (Marmonier, 2002). The number of snacks per day has increased by 14 percent and the calories consumed per snack have increased by 26 percent in the last 20 years (Zizza, Siega-Riz and Popkin, 2001; Jahns, Siega-Riz and Popkin, 2001).

Food processors have gained significant retail market power through their brands. Not to be outdone, food retailers have replied by introducing an array of their own private labels. Customers are able to buy less expensive private labels from food retailers now more than ever. Private labels continue to take market share away from national brands (Anon, 2005). Retailers privilege their private labels when it comes to shelf-space management. Because of private labels, food retailers can better integrate profitability objectives with shelf-space management. Some products marketed under a private label have sound nutritional values, but many private labels, though, feature products containing large amounts of fat and sugar, such as cookies, cakes, soft drinks, processed foods, and ice cream, among others, with these being the easiest to produce at sufficiently reduced rates to make private production profitable. Because of vertical integration, food retailers no longer have to cope with one to two percent net profit margins. As such, and with the help of private labels, most food retailers have achieved high growth and earnings over the past few decades.

To understand the dynamics of food retailing, it is crucial to note that marketing innovations put forward by food distributors and retailers over the last few decades are bringing about goods that are considered by some consumers to be of superior quality. As expressed in previous sections, a meaningful transaction for consumers has to be quantifiable. Food retailers' marketing strategies are the innate extension of those applied by food manufacturers. The cost of ignorance by many clusters of consumers is a measurement of the welfare effect of the change of quality under deficient information provided by food retailers. In other words, while only some of the goods sold by retailers are obesity drivers, consumers can be considered as powerless to really distinguish and powerless to avoid the valuation of food based on economics as opposed to nutrition. Once again, this leads to market failure as evidenced by the increasing limitation of healthy alternatives.

D. Out-of-Household Drivers

Out-of-household food marketing channels were established to provide time and place utilities for channels members and consumers. Retail outlets have seen a profound demand change in food buying patterns by consumers over the past decades. For instance, in 2002, 41% of money devoted to food items in America was spent outside the household, for outside consumption, which is double the 1982 percentage. Today, fewer consumers know how to prepare and cook a high-quality meal, as more meals are consumed away from the home. More food stores are now offering counter-ready products for fast consumption to compete with fast food outlets and other eating establishments (FMI, 2004). For the past few decades, the restaurant and fast-food industries have gained significantly from this trend and have helped reshape the behavior of consumers seeking ways to satisfy this basic need. Consumers are fond of eating away from home, since it provides them with good-tasting food, and the experience is both pleasurable and entertaining. Meals consumed away from home, however, contain more calories, as many restaurants' marketing techniques include enhanced consumption of breads and sugary beverages, even before the consumer has looked at the menu. Some food processors often work in partnership with restaurants to develop new techniques to increase sales (Anon, 2002).

Children and schools are also a concern when it comes to dealing with out-of-household meal consumption. Billions of dollars every year are spent in schools promoting food products that are devoid of nutritional value (Nestle, 2002; Plotnikoff, Bercovitz and Loucaides, 2004). Many school boards value the health of children, but often desperately need the funds to finance critical activities. Particularly in North America, studies have shown that many schools and schools boards have contracts with food distribution companies who supply drink and snack machines (Shannon et al., 2002; French, Fulkerson and Story, 2003; French et al., 2003)

Fast-food restaurants and food processors have catered to the inner-city residents who are more frequently low-income families and individuals (Risvik and Schifferstein, 2001; Critser, 2003). Many outlets are open 24 hours per day and offer drive-through services. Fast food is now served on cruise ships and trains and at stadiums, airports, zoos, high schools, elementary schools, universities, gas stations, and even hospitals (Schlosser, 2002). Many fast-food corporations have mastered the ability to provide accessible and affordable foods by using a multi-channel approach to several markets. McDonald's has over 30,000 restaurants in 188 countries. At one point, McDonald's was opening a new restaurant every 3 hours (McDonald's report 1996, 2003). In partnership with mass retailers such as Wal-Mart, Kmart, and Costco, among others, fast food outlets are now located inside such stores, and they are even found in college cafeterias. Fast food retailers are more present in urban areas than in rural ones. It has been suggested that the higher level of obesity in urban centers may have something to do with the overwhelming presence of fast food outlets (Plotnikoff, Bercovitz and Loucaides, 2004).

Portion sizes are one of the main causes for overeating, for meals consumed within the household or outside (Penisten and Litchfield, 2004). McDonald's has been recognized as one of the instigators of marketing strategies that supported enhanced portion sizes in the 1970s. Available data suggest that calories burned daily for a given consumer have not changed significantly since 1980. Calories consumed daily, however, have risen substantially (Cutler, Glaeser and Shapiro, 2003). According to a recent survey, the majority of consumers eat more food when given a larger container (Wansink, 2000). Restaurants and other food providers need to smartly manage inventory, as food is, more often than not, perishable. Low prices and big portions have become good propositions for better inventory management, incurring less waste and increasing stock turnovers.

Some critics point out that advertising influence consumer food preferences, thereby reinforcing the biological pressures driving obesity (Anon, 2003; Eagle et al., 2004). In turn, many consumers claim that the food industry has mastered effective marketing strategies by adding components to food that make consumers addicted, increase fat substance, and increase appetite in order to uphold growth and profitability for food manufacturers and distributors. There is, however, no scientific support for such claims (Eagle et al., 2004). There is actually very little reason to suggest that restrictions or interdictions of food advertising would significantly influence the obesity problem (Avery, Mathios, Shanahan and Bisogni, 1997; Eagle et al., 2004).

Critics of children's advertising state that ads on billboards, product placements in movies, food logos in schools, splashy signs on vending machines, and ads on buses, taxis, and elsewhere contribute to favorable attitudes children have toward food, especially for snack foods (Hermann, 2000). The integration of marketing communication strategies has allowed them to merge their resources with the media and astutely improve their image. Companies offer meals with toys and animated characters to attract children, and these do have an impact. Because of child-focused communications, McDonald's is the leading toy distributor in the world, distributing billions of toy-related items every year. Fast-food chains get involved in charities, hospitals for children, youth events, and country fairs to increase visibility and good publicity. Fast-food outlets and processed food manufacturers are highly visible in our society. They sell foods that are less than nutritious due to their high fat, high calorie, and high sugar content, and they have been very profitable over the years.

Such out-of-household drivers of obesity are, again, symptoms of the mutually driven relationship between product offering and valuation and consumer demand, and, again, lead to market failure in that access to healthier products is increasing limited.

Public Policy Implications

Marketing literature suggests that public policy and food distribution practices cannot be divorced (French, Fulkerson and Smith, 2003). Even though public policies vary from one country to another, changes in them and in the make-up of food distribution are not without their impact. Ultimately, public policies affect the buying decisions of consumers, and in turn, determine the ad-

justments that occur in marketing channels, and vice versa. Government action in the economy has been under intense scrutiny in recent years. Proverbial arguments center around the scope of regulation, and whether certain policies are means of corporate welfare. Governments are often blamed for market imperfections, and obesity is not an exception.

Firstly, to address obesity issues, any new policy would need to consider the effectiveness of a channel as a whole, not just one function or level in isolation, operating within a system. Alderson (1950) and Phillips (1962) argued convincingly that the role of group influences is so persuasive that marketing must be viewed as a form of group behavior in order to arrive at definitive conclusions. Channel behavior is the logical extension of the individual firm. Any significant aspirations related to obesity can be reached by subscribing to an all-encompassing strategy in which potential risks and costs ought to be shared by all channel members.

Secondly, the number of channel levels is continually changing, and several types of intermediaries are evolving. With horizontal and vertical integration schemes across marketing channels, recent changes in the structure of distribution channels suggest that centrally coordinated systems have steadily displaced conventional marketing channels as the dominant distribution mechanism in the world economy. Centralization brought more power to fewer channel members. To achieve future success with food-related policy that deals with obesity, power-holders should be stoutly convinced, in assuming future public policies, that impacts on social welfare, not just corporate welfare, are at stake. Dichotomies within food marketing channels reduce any likelihood for public policies to succeed. If these subsist, market failures would only carry on.

Lastly, food consumption ought to be prized by market participants. Consumers have done exactly what the food providers have expected them to do, that is, to purchase more food for less. Getting more of an important resource (food) and expending less of another (money) is both rational and logical (Brownell and Horgen, 2004). Many consumers seek foods that are more expensive only for their high nutritional values, better taste, enhanced health benefits, and favorable impact on the overall environment (Appleby et al., 2003). Public policies that would enhance intelligible information for the consumer on what they eat would provide modest effects, for mainly one reason: time utility. In reality, when consumers go to grocery stores to purchase commodities, they generally have very little time to set aside for shopping for groceries. As a result, they rarely have sufficient time to appreciate what type of ingredients products in their shopping carts actually contain. Many would hope that consumers obtain all the information available, assess it, and come to an objective and rational conclusion as to the best choice for them and their families. But in reality, very few consumers have the time and the resources to do this. Instead of aiming for the best nutritional option, most consumers are content with what is "good enough". They will opt for the most reasonable and affordable alternative. Availability and affordability through marketing channels are apprehensions that policymakers would have to promote for future public policies that deal with obesity. Fruit and vegetables, for example, constitute an important barrier for consumers. Fruit can be quite expensive, particularly during off-season. Low-income households are known to eat less fruit and vegetables. Consumers are often unwilling to spend more money on perishable items when they can buy non-perishable items for less money; parents want to offer fruits and vegetables to their children, but are afraid to see these go to waste. Eating should not be considered the same as breathing, but rather a means for a better quality of life. Policies should invite consumers to invest in their nutrition.

Over the years, self-regulation by the food industry has been less than successful (Seiders and Petty, 2004; Yach and Marks, 2004). Current policies have proven to be inadequate. The need for intervention is not in dispute. Poorly educated people still have a higher overall incidence of obesity than other groups of consumers (Buchholz, 2003). Any future food-related public policies would have to consider this reality. Public education programs have to deal with well-funded, powerful, and sophisticated marketing techniques from the food industry that highlight messages and images contrary to sound public policy (Yach and Marks, 2004). Educating consumers might not be the only solution. Most marketers recognize that modern food trends such as low-carbohydrate diets, organic commodities, products containing added omega3 and whole wheat

products often become fads if consumers do not enjoy the taste of new products. The flavor and taste of new food products drive investments in the food industry. Companies will commit to long-term financial plans, like building a new plant or hiring new personnel, if a craze can be based on the assertion that consumers believe that it tastes better. Ultimately, educating consumers must involve providing them with tools to find and integrate healthy alternatives into their diets without exceeding their budgets. At the same time, public policies must somehow find ways of redirecting consumer demand to more healthy alternatives by addressing both consumer and channel behavior.

New and effective food-related public policies warrant a multi-disciplinary approach. The FTC (2005) hearings showed a willingness on the part of the food industry to support experimentation and evaluation of different approaches to address the obesity problem. Obviously, there are multiple stakeholders within this industry at many levels in the supply chain. Coordination and agreement among them will be vital for the implementation of any public policy. Any new regulation will have to be harmonized with the political context of a marketing channel in order for it to be effectively enforced.

Conclusion

By looking at the obesity epidemic from a channels and public policy perspective, we are compelled to consider the obesity epidemic as the outcome of market failures. It is affecting many nations around the world, rich or poor. The explanation of the obesity phenomenon around the world involves realizing the complex relationship among multiple factors. Food-related public policy, such as the promotion of domestic commodities, research support, surveillance, and food safety have all contributed to the obesity problem, but, as shown in this paper, so have a number of channel drivers within the food supply chain. Five distinct categories of channel drivers were presented. These were: (1) Transversal drivers, (2) Farming-related drivers, (3) Manufacturing drivers, (4) Food retailing, and (5) Out-of-household consumption.

By using a channel systems perspective, the paper shows how these drivers may contribute to the present obesity situation by leading, ultimately, to market failures. Each driver has been shown to lead to market failures in that consumer choice in terms of the availability and affordability of nutritional foods is limited by these drivers. In several countries, where obesity has become an unsustainable problem, policymakers have taken into account the structure of the food industry and its channels (availability), as well as the revenues of targeted groups of consumers that are prone to be declared obese (affordability). Multiple stakeholders within the food industry support any experimentation and evaluation of future policy development that addresses obesity. Consumers always look for information, flavor, and low-priced products, and any outlook on new food-related public policies would have to consider this reality.

Future research should examine the singular impact of each channel member, focusing on developing more comprehensive models to explain the outlined factors influencing obesity. Models need be designed in conjunction with the realities of the public policy agendas, consumer trends (which have been shown to be largely driven by the marketing channel), and socio-economic demographics of a given country.

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