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Food Demand, Diet and Health- The Role Played by Managers of Agribusinesses¹

INTRODUCTION

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The White House Task Force on Childhood Obesity noted that the childhood obesity is a national health crisis resulting in substantial economic costs and has acknowledged that both consumers and industry must play active roles in improving diet quality. The report noted that food and beverage companies (including restaurants, food retailers) have “an important role to play in creating a food marketing environment that supports, rather than undermines, the efforts of parents and other caregivers to encourage healthy eating among children and prevent obesity.” The Institute of Medicine has also recognized that obesity creates serious health, economic and social consequences and an IOM committee has developed an action plan for measuring progress in obesity prevention efforts.

Obesity worldwide has nearly doubled since 1980 resulting in more than 1.4 billion adults, ages 20-years and older, who were overweight. The World Health Organization (WHO) emphasized that 65 percent of the world's population lives in countries where overweight and obesity kills more people than underweight. The WHO Global Strategy on Diet, Physical Activity and Health calls upon all stakeholders to take action at global, regional and local levels to improve diets and physical activity patterns at the population level.

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In 2013 the WHO targeted the marketing of unhealthy food to children and stated that the food industry's has been "disastrously effective" at fueling the global obesity epidemic. The United Nations health agency advocated developing tighter regulations to prevent corporations from advertising fatty, salty, and calorie-heavy foods to kids and endorsed recommendations to guide countries in designing new polices on food marketing communications for foods high in in saturated fats, trans-fatty acids, free sugars, or salt. All 53 member states in the European region have signed on to consider restrictions on the marketing of unhealthy foods to children. The diversity of responses that are under consideration can be informed by the policy oriented research presented in the papers for this special issue.

In the United States the IOM report specifically commented on the variety of environmental and policy strategies that are being implemented at both the national, state, and city level and emphasized the need for rigorous scientific evaluation and assessment of how these programs influence behavior. Policy innovations create the demand for timely and meaningful data on consumer and business responses and this is a feature of the articles in this Special Issue.

This issue of IFAMR will examine how managerial decisions, firm strategy, and store format are tied to health issues and health claims through food marketing, advertisement, refrigeration, product labeling, packaging, product reformulation, and shipping. In other words, how are retail stores and the production and product sales of the food industry shaping consumer demand and health outcomes in the US or worldwide?

A set of four articles assess the impact of consumer preferences on nutritional quality of household purchases, consumer preferences for nutritious foods in a food desert, the role of information on meat consumption, and the choice of food shopping outlets in a developing country.

Berning examines how the nutritional content of breakfast cereal purchases by households is influenced by coupons. There has been limited research investigating how coupon-induced purchases influence the nutritional content of household purchases. Breakfast cereal is regularly consumed in the US and is a popular choice for breakfast among children and adults. Since breakfast cereal is primarily purchased at retail stores for at home consumption, a household model can account for the entire basket of breakfast cereal purchases.

The author finds that manufacturer and retailer coupons are associated with slight increases in the purchase of beneficial nutrients like protein and fiber. But coupons also lead the household to increase purchases of potentially detrimental nutrients such as fat, sodium and sugar. The managerial implications of the research lie in understanding how consumers are using coupons. For consumers who are mainly concerned about price and are less concerned about product quality, then coupon marketing programs such as double coupons or coupon stacking (using manufacturer and retailer coupons at the same time) may be effective marketing tools. If consumers are more concerned with taste or better nutritional content, then large price discounts may not be as important to consumers. In particular, promoting better nutritional content may need to be part of a more comprehensive marketing plan that not only offers price discounts, but also promotes the nutritional content of the cereals.

Weatherspoon et al. analyze demand for healthy food products in an urban food desert with the objective of identifying the factors that influence healthy food consumption. Food deserts are environments that lack the typical variety of foods that society has come to expect from a flourishing community, due primarily to limited choices among supermarket chains that usually provide quality, affordable, and nutritious food options.

The authors highlight that the lack of knowledge about the factors that influence demand for nutritious foods among poor, ethnic populations, and populations of color constrains the ability of both public- and private-sector interventions to expand the availability of nutritious foods while replacing unhealthy consumption of high calorie foods. The approach looks at the demand for fresh fruit and vegetables in a Detroit, Michigan food desert area and determines the factors that influence the consumption of fresh fruit and vegetables.

The article develops implications for retailers in how to improve access to nutritious foods for low income, urban households and identifies innovative entry and maintenance strategies are needed to make retailers viable in this setting. Adaptations to consumer shopping behavior are also mentioned such as research to increase the frequency of shopping trips per household, shifting the timing of shopping over the month, and ways to assess how shopping behavior is influenced by lack of food storage and appropriate facilities to prepare food.

Cordts, Spiller and Nitzko provide an international perspective on the emerging environmental and health literature mentioning the negative implications for consumers and societies due to the growing demand for and the production of meat. Some German scientists and government institutions are advocating for policies designed to reduce the domestic consumption of meat. This article developed a detailed understanding of the underlying motives for meat consumption among German consumers. The study focusses on four types of information regarding the negative effects of meat consumption on human health, climate, personal image or animal welfare and investigates which kind of information has the largest effect on consumption patterns of male and female consumers in Germany. Animal welfare aspects motivated the largest number of respondents, which might be due to the fact that animal welfare issues are very emotionally discussed and are able to directly cause high levels of concern in many consumers.

Meng et al. shift the research perspective to a developing country and assess the factors that influence consumer choice of food shopping outlets. This paper fills a research gap since there are few studies that examine consumer food retail format across both modern and traditional food outlets, especially in West Africa. Unique survey data from Ghanaian urban households is exploited to identify the key socio-demographic characteristics that affect consumer food shopping choices (supermarket vs. traditional outlets) and to illustrate how the food retail formats affect consumers' diet and health.

Consumer profiles in each food retail outlet provide insights to guide marketing strategies along with entry, exit, consolidation and expansion strategies of food manufacturers, distributors/marketers, and food retailers. A clearer understanding of food retail choices of consumers will show how food retail formats relate to consumer food selection, which further affects consumer diet, nutrition, and health.

A second theme that emerges in the Special Issue is the role of firm and industry strategies in influencing consumer demand, diet and health. *Hahn and Davis* measure how a tax on sodium would affect the demand for eight different types of lunch meats with the tax rates for the lunch meats varying by the sodium levels. The approach measures how these sodium taxes on lunch meats will affect consumers' economic welfare and develops measures of the accuracy of the tax-effect estimates. The paper uses a flexible model of consumer demand to translate price changes into estimates of economic welfare effects.

The authors carefully explain an unexpected result that sodium taxes will, in some cases, reduce the consumption of lower sodium alternatives by more than the high-sodium ones. Sodium taxes will increase the prices of all lunch meats and many of the high-salt lunch meats also have high prices. High-salt items would have the largest taxes but the percent increase caused by the tax is lower for high-salt items than for low-salt items since these items have high initial prices. The authors are careful to note the issues that are not addressed in this analysis including the absence of supply-side effects. Processors could react to lower demand by cutting their prices, implying that these estimates will overstate the value of taxing sodium.

Hooker and Downs note that food managers are continually developing and testing changes in the nutritional quality of diets. In this case study the authors compare a monitored industry self-regulation of *trans* fat (used in Canada) and a firm initiated strategy (US primarily) to alter the nutrient quality of new cookies launched between 2006-12. Differences between food labeling policies in the US and Canada are then compared to explore the merits of a conceptual model.

The finding highlights that *trans* fat levels in new products decreased over time in both countries. Cookies that did not contain *trans* fat, were significantly lower in energy, lower in fat and higher in protein and fiber in the US and Canada, suggesting that managers have innovated to provide more healthful options. *Tran* fat levels were already decreasing between 2001 and 2006 in the US, but the implementation of the labeling regulation in the US was associated with an additional reduction of nearly 50 percent.

Leschewski and Weatherspoon find that in food deserts, fast food restaurants and convenience stores often outnumber supermarkets. This motivates their study examining the pricing strategies of fast food restaurants in eight Michigan cities, comparing the four largest cities by population in Michigan that have areas characterized as food deserts with the four largest cities in Michigan that have no areas characterized as food deserts.

The findings indicate some fast food restaurants charge higher prices for select food items at restaurants located in food deserts, despite having similar ownership structure, offering similar amenities, and having similar business approaches. Evidence of differences in consumer preferences are also uncovered since food desert residents are more likely to dine at burger style restaurants than at sandwich shops (such as Subway), even though sandwich shops are often viewed as a healthier option than burger style restaurants.

Thapa and Lyford provide a systematic review of programs implementing tools of behavioral economics like nudging and choice architecture to promote healthy food choice and consumption in school lunchrooms. The findings show how the decisions of the food suppliers were altered.

An important contribution of this paper will be to consider whether businesses that supply foods to school lunchrooms have responded to the nutrition improvement efforts by changing their products.

In general the studies show that nudging in the lunchroom leads to an increase in healthier food choice decision. Most of the research conducted has often focused on increasing healthy food consumption, including fruits and vegetables. The authors note that incorporating the feedback and views of the food supplier is rarely considered. Studies examining the impact that changes in lunchroom choice architecture might have on food supplier decisions are also absent in the applied policy literature.

Lin et al. examine the potential nutritional impacts of changes in ready-to-eat (RTE) cereal purchases in response to a supermarket shelf-tag nutrition information system. The Guiding Stars Program (GSP) was implemented by a regional U.S. supermarket chain using stars to indicate higher overall nutritional quality of a food product. The authors simulate changes in RTE cereal intake predicted by estimating demand if a GSP or a 10 percent price manipulation were in effect in the United States, and measure the impact on intakes of whole grains, added sugars, sodium, and calories. The findings reveal small effects for the GSP and somewhat larger ones for a 10 percent price intervention.

Consumer responses were not uniform across the nutritional variables of interest but the program does simplify decision-making for consumers by grouping products according to the program's nutritional criteria. This paper provides information for food manufacturers and retailers on the potential dietary effects of changes in purchases associated with a shelf-tag labeling system. In general, it appears that private-sector pricing strategies such as sales on more nutritious cereals may be helpful in promoting diet and health, especially when paired with nutrition information or health promotion strategies.

Wilde et al. provide insight into how the definition of a food desert influences conclusions about the adequacy of food retail conditions across the nation and is useful in identifying the geographic areas that lack adequate retail food options. The approaches differ in the underlying household-level conditions that are used, embody different assumptions about the relationships between poverty, vehicle access, population density, and proximity to supermarkets, and use alternative methods to aggregate data from basic units (such as a census block group) to larger geographic units (such as a census tract). This article compares and contrasts the three approaches using a common data source—a representative random sample of more than 33,000 census block groups in the continental United States.

The authors develop recommendations for future work in measuring food retail adequacy. They advocate for stating explicitly the household-level or individual-level condition that represents inadequate food retail access and provide examples of conditions that are reasonable to use. Second, researchers need to carefully assess how results are influenced when aggregating from granular geographic data to larger areas such as census tracts or counties. The overall goal is to aggregate in a fashion that preserves the underlying information about the extent of hardship. Current methods of aggregation may cautiously classify some census tracts as having inadequate access even if many block groups or smaller geographic units contained in the census tracts have adequate food retail access. The authors also emphasize the policy implications that flow from the recent research literature on food retail adequacy.

