

# Changes in Nutritional Quality of Food Product Offerings and Purchases

## A Case Study in the Mid-1990's

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### Introduction

Interest in human nutrition has been growing in recent years in the United States. The general public is now much more aware of the importance of the relationship between diet and health. Manufacturers and retailers have had to take account of this awareness in deciding on the composition, labeling, and marketing of foods.

In several recent studies, researchers have reported rapid growth in the market for nutritionally improved foods relative to regular versions of the same products, using supermarket scanner data (Frazão and Allshouse, 1996; *The Food Institute Report*, 1997). Frazão and Allshouse, for example, used nutrition content claims coded from a product's front panel, included in a national supermarket scanner data base, to analyze this trend. An individual food product was considered to be a "nutritionally improved version" if its front panel carried claims about reductions in the level of specific undesirable nutrients or increases in desirable nutrients. These studies suggested strong growth

in the availability of nutritionally improved versions of foods in supermarkets. They did not, however, directly quantify nutritional quality or changes in quality over time.

This study quantifies nutritional quality change for five selected food categories. Results are presented on both product offerings and a measure of products purchased for one category (processed meats and bacon) for 1992-97, for three categories (entrees, salted snacks, and cookies) for 1994-97, and for one category (soup) for 1995-97. Two methods are used to measure nutritional quality change among products offered for sale by manufacturers in these categories. The first method uses a nutritional quality index developed by Padberg and others (1993) that is a composite measure of the nutritional quality of products. The second method is a measure of nutrient-by-nutrient changes in product offerings within the five categories. These indexes and nutrient content levels are then compared to construct simple measures of nutritional quality change over time.

The basic data set on the nutritional content of food products used in this analysis is for a complete census of all products offered for sale in a uniform package size in the food categories studied in a superstore in New England for each of the years

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1992-95 and 1997.<sup>1</sup> While this data set does not contain all products offered for sale in a particular year in the United States, it does provide broad coverage of the categories studied. The data are part of an ongoing survey, conducted at the University of Massachusetts, Amherst, that is designed to track the evolution of product offerings and label content in this period of market and regulatory change.

In addition to the superstore data on nutrition content, national sales data are used to calculate measures of change in the Padberg nutrition index weighted by market share. This approach provides a preliminary measure of the nutritional quality of food products actually purchased by consumers, which can be compared with changes in the nutritional quality of products offered for sale.

### Changing Regulatory Regimes

The regulatory environment controlling food manufacturers' communication of nutritional attributes to consumers through labeling changed dramatically from partial controls in the 1970's and 1980's to a much stricter and mandatory nutrition labeling system beginning in 1994. The Nutrition Labeling and Education Act (NLEA) regulations require mandatory nutrition information panels for almost all packaged food. In addition, they require a new format for the nutrition information panel called "Nutrition Facts," standardization of serving sizes, and strict regulation of the use of descriptors and explicit health messages. Nutrition labeling remains on a voluntary basis for raw food stuffs (primarily fruits, vegetables, and meats) though grocery stores are required to post general nutrition information at the point of sale.

The new labeling regulations, as implemented by the Food and Drug Administration (FDA) and U.S. Department of Agriculture (USDA), changed the nutrients that must be listed on the redesigned "Nutrition Facts" panel. The new nutrient list emphasizes fats, sodium, and cholesterol, and thus reflects transformed health concerns and dietary patterns. Information on nutrient content is presented in quantitative amounts and as percentages of standardized dietary reference values, stated as "Percentage of Daily Value." Also,

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the listings in the "Nutrition Facts" panel are based on standardized serving sizes to help consumers understand and compare the nutritional values of different foods. As a result, serving sizes should be consistent across product categories and closer to the amounts people actually consume.

The poor diets of a significant proportion of the population, acknowledged by Federal health agencies, encouraged this labeling regulation. In practice, food labels impact product formulation, advertising, consumer confidence in food quality, and consumer education on diet and health, thus offering real health benefits to the general population and potentially improving economic efficiency and welfare (Caswell and Padberg, 1992).

### Research Objective

The mid-1990's were an era of important change in markets for nutritional attributes. Rising consumer interest was coupled with extensive changes in nutrition labeling regulations, with nutrition labeling becoming mandatory for most products in 1994.

Improvements in nutrient intake of the population depend on the interaction of demand and supply forces in food markets. On the demand side, consumers' interest in and purchase of diets and products with improved nutritional profiles have a direct effect on nutrient intake. Consumers' ability to choose their diets partly depends on the quantity and quality of information available through a variety of sources, including food labels. On the supply side, Americans' diets may be affected by shifts in the composition of food product offerings. Here, too, change in the information environment may interact with demand factors to influence the mix and formulation of product offerings.

Information disclosure requirements on the nutritional quality of food are likely to significantly affect demand patterns and dynamics of food markets. Because access to information about product nutritional quality improved, products with less desirable nutrition profiles may reformulate. Also, rivalry between manufacturers may affect product design, even when a small number of consumers use labels (Caswell and Padberg, 1992).

The main objective of this research is to investigate changes in the average nutritional quality of food products offered for sale by manufacturers and food

products purchased by U.S. consumers in the mid-1990's. This requires identifying effective methodologies for measuring the nutritional quality of food products. These methods can then be used to track quality change over time. To date, very few studies address the nutritional quality of food product offerings and food products purchased or the effect of changes in labeling regulations on the food supply. Exceptions have focused on changes in specific nutrients. For example, Ippolito and Mathios (1990) found that producers' new ability to make health claims about fiber led to significant product innovation and

development in the ready-to-eat cereal industry in the 1980's, with fiber content increasing without adverse effects on other nutrient characteristics. In addition, Ippolito and Mathios (1996) found that fat and cholesterol consumption fell during the years 1977-90 and fell more rapidly after 1985 when health-related claims became more explicit and frequent in advertising for food products. Little work has been published, however, on overall changes in the nutritional quality of products offered for sale and purchased in the United States. This study addresses this supply-side gap in the food marketing literature.