Changes in Nutritional Quality of Food Product Offerings and Purchases: A Case Study in the Mid-1990's. By Eliza M. Mojduszka, Julie A. Caswell, Dennis B. West, and J. Michael Harris. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Technical Bulletin No. 1880.

Abstract

This report provides a new economic approach and methodology for analyzing nutritional quality change in manufacturers' food product offerings and food products purchased using a case study of five food product categories in the mid-1990's. Two approaches were used to analyze nutritional quality change in product offerings. The first approach uses a composite nutritional index to measure changes. A second approach, nutrient-by-nutrient analysis, was also used to measure quality change. Overall, the nutrition index analysis showed no significant change in the average nutritional quality of products offered for sale in the five categories.

Keywords: Nutrition quality, quality index, quality, food product offerings, nutrition labeling.

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Summary

Several studies have recently suggested strong growth in the availability of nutritionally improved versions of foods in U.S. supermarkets. These analyses are based on scanner data, where nutrition information was coded from the front panel of the product's package. Individual food products were considered to be nutritionally improved if they carried front-panel claims about reductions or increases in the level of specific nutrients. However, these studies do not directly quantify changes in the nutritional quality of food products offered for sale and purchased over time.

This report provides a new economic approach and methodology for analyzing nutritional quality change in manufacturers' food product offerings and food products purchased through a case study of five selected categories in the mid-1990's. It uses data from a complete census of all product offerings in a uniform package size in a supermarket in New England for each of the years 1992-95 and 1997. These data were developed at the University of Massachusetts to track the evolution of product offerings and nutrition label content in this period of regulatory change. To supplement the supermarket data, scanner-based national sales data were used to calculate preliminary measures of nutritional quality change in foods that were actually purchased in the marketplace.

Two approaches were used to measure nutritional quality change in product offerings in the five selected food categories: entrees, soup, salted snacks, cookies, and processed meats and bacon. The selected categories ranged across a spectrum from high to medium levels of formulation and represented foods that are important in consumer diets. In the first approach, the composite nutritional quality index developed by Padberg and others was used to measure nutritional quality changes. Calculation of the index requires complete nutrient data, which was frequently missing from product packages prior to the implementation of mandatory labeling in 1994. Because of the lack of data for earlier years, analysis for the years 1992-97 was possible for only processed meats and bacon, with the analysis of entrees, salted snacks, and cookies covering 1994-97 and the analysis of soup covering 1995-97. A second approach, nutrient-by-nutrient analysis, was also used to measure quality change.

Overall, the nutrition index analysis showed no significant change in the average nutritional quality of products offered for sale in the five categories. For entrees and cookies, the changes in the mean values of the nutrition indexes for products offered for sale were negative, which would suggest that the average nutritional quality of these foods decreased in the period 1994-97. For soup in 1995-97, salted snacks in 1994-97, and processed meats and bacon in 1992-97, the changes in the indexes were positive, which would suggest that the average nutritional quality of these products increased. However, in all of the categories considered, the changes in the nutrition indexes were statistically insignificant. For the processed meats and bacon category, the pace and direction of nutritional quality change was the same before and after the implementation of the Nutrition Labeling and Education Act in 1994.

Investigation of changes in the content of individual nutrients revealed similar trends and supported the findings from the nutrition index analysis. The only significant changes at the 95-percent level were in saturated fat and vitamin A in salted snacks, and in carbohydrates, vitamin A, calcium, and iron in processed meats and bacon. At the 90-percent level, the only significant changes were in vitamin A in soup, in fat in salted snacks, in fiber and protein in cookies, and in saturated fat and protein in processed meats and bacon. If changes in nutrient content were significant, increases in desirable nutrients were offset by increases in undesirable nutrients or decreases in undesirable nutrients followed decreases in desirable nutrients. Further analysis of the index results showed that both entering and exiting brands had higher nutritional quality indexes than the category as a whole. This finding is consistent with the finding that, overall, the average nutritional quality of foods offered for sale did not change much in the years examined, although nutrition indexes were higher than average for products entering the market.

To analyze changes in nutritional quality for foods actually purchased by consumers, the nutrition indexes for individual brands were weighted by scanner-based market share data. The results of this analysis are preliminary due to difficulties in matching products from the nutritional content data set with those in the national sales data set. For the set of products analyzed, the market share-weighted index values were lower than their unweighted counterparts. This finding suggests that, within the food categories, the relatively less healthful products had higher sales. In addition, separating entree and cookie brands into products with above- and below-average nutritional quality provided evidence that supported a decline in the proportion of relatively more healthful products sold. Market share-weighted indexes for soup, salted snacks, and processed meats suggest improvements in the average nutritional quality of products purchased in these food categories.

Market activity was high during the mid-1990's, around the introduction of nutritionally improved foods. This analysis indicates that, for the five food categories of entrees, soup, salted snacks, cookies, and processed meats and bacon, this market activity did not significantly change the average nutritional quality of food products offered for sale by manufacturers or, in preliminary results, the food products purchased by consumers.