

Regulation of Advertising and Labeling: Conditions of Private Information Supply

Advertising and labeling of food make large amounts of nutrition information available to consumers. In 1996, producers spent \$21 billion for advertising and \$47 billion for packaging (Elitzak). While only a fraction of these expenditures supports nutrition information, that fraction is probably larger than the total of public nutrition education programs. In the 1980's, widespread, but inconsistent, claims and advertising accompanied increased public recognition of the connection between nutrition and health. Consequently, in the early 1990's, significant new regulation of food labeling was established through the Nutrition Labeling and Education Act (NLEA) of 1990, which was implemented with regulations that took effect in 1994. Advertising policy changed as well. Current discussion among nutrition educators focuses on the effects of these changes in policy and regulation.

Federal Regulation of Nutrition Advertising and Labeling

Three agencies share primary responsibility for Federal regulation of nutrition information: the Food and Drug Administration (FDA), the Federal Trade Commission (FTC) and the Food Safety and Inspection Service (FSIS) of the U.S. Department of Agriculture (USDA). The Federal Trade Commission regulates food advertising, while the other two agencies share responsibility for regulating labels; FSIS regulates meat and poultry product labeling and FDA regulates other foods' labeling. The NLEA addressed FDA-regulated packages, and FSIS issued parallel regulations.

The NLEA and related policy developments channeled nutrition labeling and package claim practices that had expanded greatly during the 1980's. Beginning in 1973, the FDA required nutrition labeling for packaged products that contained nutrients added during processing or that made health or comparative content claims. Nutrition labels were on about 40 percent of food packages in 1977 (Wang et al.). In the early 1990's about 70 percent of packages displayed nutrition labeling (Caswell). Many consumers reported using the labels at least some of the time. In USDA's 1987-88 Nationwide Food Consumption Survey, 45 percent of households reported that they had obtained nutrition information

from food labels in the previous year (Wang et al.). Bender and Derby reported that the percentage of consumers who claimed to pay attention to nutrition labels rose from 68 percent in 1982 to 74 percent in 1988. In 1990, 79 percent of respondents to a National Food Processors Association survey said they "always" or "sometimes" read labels before buying a food for the first time (Mueller).

The NLEA, its implementing regulations, and parallel regulations issued by FSIS prescribe three aspects of package labeling: nutrient contents, nutrient content claims (such as "low fat"), and diet-disease claims (such as high fiber will reduce risk of cancer). The now-familiar nutrition panel that must appear on most packaged foods contains nutrient content information and the percent of the daily value these nutrients represent in a 2000-calorie diet. Regulations also prescribe nutrient contents for each claim.

The FDA also restricted health claims to those that it determined were supported by significant scientific agreement. Permitted health claims are:

- Calcium with reduced risk of osteoporosis
- Sodium with increased risk of hypertension
- Dietary fat with increased risk of cancer
- Dietary saturated fat and cholesterol with increased risk of coronary heart disease
- Fiber-containing grain products, fruits, and vegetables with reduced risk of cancer
- Fruits and vegetables with reduced risk of cancer
- Sugar alcohols and increased risk of dental caries
- Whole oat foods and reduced risk of heart disease
- Foods containing psyllium and reduced risk of heart disease
- Folate with reduced risk of neural tube defects

More claims are likely as scientific evidence accumulates. The Food and Drug Administration Modernization Act of 1997 permits claims based on statements of U.S. Government scientific bodies with responsibility for public health or the National Academy of Sciences or its subdivisions. Distributors and manufacturers must

submit notification of claims to the FDA, which will determine whether the claim fits the Act's provisions.

While the regulations require most food packages to be labeled, they exempt ready-to-eat foods prepared primarily on site, such as deli and bakery items and restaurant food. Nutrition information is voluntary for raw fruits, vegetables, fish, meat, and poultry. Since food-away-from-home now comprises 40 percent of consumer food expenditures (Elitzak), an ever-growing part of the food supply is exempt from nutrition labeling, unless the seller makes a nutrient content claim, such as "low calorie."

After the NLEA was implemented, the FTC issued a policy statement on food advertising that automatically makes claims acceptable for advertising if they conform to the FDA regulations. Claims inadmissible for labeling are not admissible in advertising. Advertisers can make other claims, however, under carefully prescribed conditions for accuracy and presentation of substantiating evidence (Starek).

Theoretical Considerations With Respect to Advertising and Labeling

Economic analysis of advertising focuses on producer behavior in competitive markets. Generally, producers disclose only information advantageous to them. For example, the producer of a product low in fat will voluntarily advertise that fact, while failing to disclose a high sodium content. However, competitors might advertise that their products are low in both fat and sodium. Consumers would then be suspicious of products that failed to make both claims. This competitive disclosure, or unfolding process, results in explicit claims for all positive aspects of food and causes consumers to be suspicious of foods without claims. The unfolding hypothesis also operates to alert consumers to negative aspects of products. For example, the cigarette brand that advertises less tar is alerting consumers to a negative aspect of all cigarettes. Under the theory, disclosure of tar levels will be widespread among low-tar cigarettes and nonexistent among high-tar cigarettes. The unfolding theory implies that the presence of advertising is a signal of quality and that lack of advertising about a specific quality alerts consumers to a probable absence of quality (Grossman; Ippolito and Mathios, 1990).

Advertising is voluntary for sellers. Although some labeling is voluntary, much is now mandatory and is

likely to have effects beyond those of the unfolding hypothesis. Mandatory labeling could improve food products if producers reformulate products to avoid making unfavorable disclosures, such as high fat or sodium content. This process would extend the benefits from nutrition labeling to consumers who do not actually use labels to make purchase decisions (Caswell and Padberg). Mandatory labeling also changes the function of nutrition information, a credence characteristic of food, when the consumer cannot evaluate it before purchase and consumption. If nutrition information that the consumer trusts is available, nutrition labels could function as a search characteristic (Caswell and Mojduszka).

Theoretical approaches from the nutrition education literature provide additional useful insights about how current labeling regulations may affect consumers. By itself, the nutrition label panel would not be expected to have significant effects. The knowledge-attitude-behavior approach in which provision of nutritional facts is expected to lead to behavioral changes would apply. But this approach is generally not successful because motivational knowledge must precede how-to knowledge to produce behavioral changes. When information provided by nutrition and health claims on packages and advertising motivates consumers, however, the how-to aspect of nutrition-content labeling might have an effect. Claims could provide the motivational knowledge necessary to move the consumer along the first few steps of the stages of change model, which include precontemplation, contemplation of change, decision to change, overt behavioral change, and maintenance of change (Contento et al.).

A similar marketing theory, the information-processing model, hypothesizes a series of steps that consumers would take before actually purchasing a product: exposure, reception, persuasion, retention, and behavior. Consumers may ignore the messages at any step by not hearing (seeing) the message, by not processing the message, by rejecting the message rather than being persuaded by it, by forgetting it, and by not changing their behavior. Each decision may be affected by other aspects of the message: the source, the substance and style, the channel, and the nature of the target audience (Scholten).

The same consumers may process information that they hear from several sources. For example, a nutrition education class may alert consumers to a diet-disease relationship, a connection that may be reinforced by a

media ad promoting a low-fat product, and that is again reinforced on a label as consumers purchase products. Even if the label were the most proximate cause of dietary change, the other programs would have been necessary to alter consumers' decisions.

Applied Studies of Advertising and Labeling

The economics of information literature treats advertising as a source of information about product characteristics, be they search, experience, or credence characteristics. This view of advertising is that it contains factual information. Other literature emphasizes the image or persuasive nature of advertising. For the economists of information literature to be relevant, advertising must be informational. Abernathy and Franke conducted a meta-analysis of 59 studies on the information content of advertising to determine how much and what kind of alleged facts or cues were contained in the average ad. The study relied on widely used categories of ad content, one of which is nutrition characteristics (table 5). The studies represented 91,000 ads from a number of countries. More than 84 percent had at least one cue, or fact, 58 percent two or more, and 33 percent three or more. The most common type of information was about product performance, contained in 43 percent of ads. Other facts included in the ads were availability, 37 percent; components, 33 percent; price, 25 percent; quality, 19 percent; and special offers, 13 percent. Thus, advertising does provide information some of which consumers can verify. The finding is consistent with the economic analysis of information introduced by Stigler,

the economics of information theory, and the unfolding hypothesis.

If advertising is informational, nutrition advertising could be a form of nutrition education. Ippolito and Mathios (1990) conducted a widely cited study of the effects of nutrition-advertising claims regarding fiber in cereal. The study examined conditions in the ready-to-eat cereal market before and after manufacturers began a mid-1980's campaign that stated the relationship between fiber consumption and a reduced risk of colon cancer. The claim, first made by the Kellogg Company, asserted the message was endorsed by the National Cancer Institute.

Comparing the pre- and post-claim periods regarding fiber in cereal, Ippolito and Mathios found that knowledge of the fiber-cancer link increased among all educational levels, market share shifted to higher fiber cereals, the fiber content of cereals in general increased, and disclosure of other nutrients, such as sodium, increased. The example demonstrates that advertising can transmit nutrition information and change food choices when it contains a simple message that requires low-cost actions (more purchase of high-fiber cereals).

In 1985, the FDA, in effect, relaxed a prohibition against health claims and permitted them if they met the standards of non-deception and substantiation required of all advertising. Consequently, the marketplace experienced a flood of health claims. Ippolito and Mathios (1995) also examined this second period. They found that fat consumption per capita fell continually from 1977 to 1989/90, but that it fell faster after the ban was lifted. The results are consistent with an information role for advertising.

Their results also illustrate one advantage of advertising information—specificity. In 1977-85, before nutrition claims were permitted in advertising, consumption of fat declined among categories of food whose fat and/or cholesterol content was widely communicated—meat, eggs, and fats and oils. However, increases in fat content from other foods largely offset these consumption declines. After 1985, people consumed less fat across more categories, with less increase in other categories. This result suggests advertising claims provide a finer level of detail than broad nutrition information and that such details assist consumers making choices within such categories of food as frozen dinners. Other nutrition information programs also affected consumers'

Table 5— Advertising Information Content Categories

<i>Price</i>
<i>Quality</i> - characteristics of product
<i>Performance</i> - what the product does
<i>Components</i> - materials and ingredients
<i>Availability</i> - when and where to purchase
<i>Special offers</i>
<i>Taste</i> - citation of other consumers
<i>Nutrition</i> - content, comparisons
<i>Packaging</i> - size, shape
<i>Warranties</i>
<i>Safety</i> - special features
<i>Independent research</i> - citation of studies
<i>Company research</i>
<i>New ideas</i> - new concepts embodied in product

Source: Resnick and Stern as quoted in Abernathy and Franke.

diets. Together with advertising, these programs could explain the findings in Contento et al. that nutrition knowledge and improvement in diets spread widely during the 1980's and that community-level efforts at nutrition education often had no statistically significant additional effects.

Evidence that ads provide some facts does not mean they provide all the facts; the unfolding theory predicts many ads would not. Ippolito and Mathios (1990) reviewed four applications of the unfolding hypothesis to markets. Evidence supported the idea that producers disclose favorable nutrient composition for cereals and spreads—butter and margarine—but not for frozen pizza and cigarettes. They conclude, “...this evidence supports the view that competitive forces can *sometimes* be relied on to fill in missing information in the market” (page 432, italics added). Caswell (1992) reported similar inconsistent evidence for the unfolding theory.

The possibility that unfolding through competitive advertising claims will sometimes add to nutrition information in markets remains relevant because producers' advertising claims, unlike labeling, are voluntary. Package claims are often more visible and eye-catching than the required nutrition-label panel. The possibility that the absence of eye-catching claims should arouse consumer suspicion is likewise still relevant, but the nutrition-label panel makes it easier for consumers to confirm or allay their suspicions.

When mandatory nutrition-labeling regulations were enacted, some speculated that new and reformulated food products would be introduced so that producers could advertise products' improved nutritional characteristics. Large numbers of nutritionally improved foods (mostly fat reduced) have been introduced, but there is debate over whether they can be attributed to mandatory labeling (Petruccelli).

Consumers' knowledge of store prices provides some clues about their likely behavior toward nutrition information after the NLEA. Despite price labels, market researchers report that consumers generally do not know the prices of most items in their grocery baskets. Consumers appear to be more concerned with the cost of shopping time and rely on general impressions of the cost competitiveness of stores they develop through advertisements (Avery). It is also possible that past investment in price information is reflected in current

choices. A similar approach could be expected for consumers' use of nutrition information.

The quantity of standardized nutrition information available to consumers has increased markedly since the 1977-90 period studied by Ippolito and Mathios. FDA's implementation of the NLEA, FSIS's parallel labeling regulations, and FTC's conforming policy statement all increased the consistency, uniformity, and pervasiveness of nutrition information in the marketplace. The cost of information acquisition has been reduced to reading and processing package or display labels. However, the time costs are still significant enough that they will be a barrier to some consumers.

Moorman assessed the effects of the NLEA by comparing samples of grocery shoppers in the same cities and stores in October 1993 and October 1994, several months before and after the NLEA effective date of May 1994. Her questions were as follows: Has the introduction of the NLEA increased nutrition information processing at the point of sale? Has the NLEA promoted nutrition information processing regardless of individual consumer differences? Has the NLEA increased nutrition information processing at the point of sale for both healthful and non-healthful products? Moorman wanted to know if the NLEA increased information use while reducing the effects of consumer backgrounds and the nature of products. Consumers were questioned immediately after they were observed selecting a brand in 1 of 20 product categories in grocery stores.

In the pooled data for the 2 time periods, consumers spent an average of 12 seconds choosing a brand, and nearly half of consumers made their choice in 1 second (figure 1). If either price or nutrition information influenced most purchases, that influence was probably based on memory or general impressions of brands, products, and stores. Results indicated consumers' ability to recall fat content was inaccurate.⁵ These data appear surprising compared with the pre-NLEA findings that large proportions of consumers claimed to use labels, but the consistency with which consumers claimed to use labels varied from “in the past year” to “always or sometimes.” Moorman's results suggest that label use is neither pervasive nor continuous.

⁵When shoppers were asked to recall the grams of fat per serving in the last brand selected, the average error of recalled fat grams per brand was 5, with a standard deviation of 14. Since fat content varied from 0 grams for orange juice to 3 grams for cereal, to 17 for frozen pizza, the average recall appears inaccurate.

Moorman found statistically significant increases in information acquisition, measured by search time in seconds, after the NLEA took effect. Motivated consumers acquired more information after the law than before, and even the less motivated more accurately recalled fat content afterwards. Likewise, the level of knowledge consumers had about label regulations and diets in general became less important to fat recall after the law. Diet-disease knowledge became more important, however, possibly because diet-disease claims on packages were carefully regulated. Finally, consumers retained more information about higher fat products (those defined as having more than 5.5 grams of fat per serving) than they did about lower fat products. The author speculates that standardized and adequate reference information, required by the NLEA, raised awareness of the nutritional quality of food products, thereby increasing the focus on higher fat products. Thus, the NLEA may have spurred product competition, even among higher fat products.

If mandatory labeling is to make nutrition a focus of market competition, consumers must use the information. The nutrition education and marketing literature emphasizes the need for awareness and motivational knowledge to precede the use of how-to information

and change in behavior. Motivational knowledge does appear to be a precursor to use of labels, as these theories suggest. Moorman and other researchers have found that health-conscious consumers use labels more than other people (Wang et al., Mueller).

Conclusion

Producers provide significant amounts of nutrition information in advertising and labeling. Since the mid-1990's, regulation has increased and channeled this information, but consumers still need motivation to obtain it, process it, and change their behavior. The convenience of nutrition information on packages could make nutrition education and information programs more effective if they can provide motivational knowledge as well. The potential benefits to consumers from the regulatory developments in the 1990's will ultimately depend on the ability of education, advertising, and package claims to motivate people to use labels and to improve their diets and health.

Figure 1— Consumers Choose Food Products Quickly

