Advertising Nutrition & Health

Evidence from Food Advertising 1977-1997

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Executive Summary

This study examines new data on the types of claims made in food advertising during the years 1977 to 1997. The study's primary focus is the use of nutrition-related claims. Besides providing a wealth of data on the basic content of food advertising over time, we have two additional goals: first, to better understand the economic forces affecting the flow of nutrition information to consumers in marketing, and second, to examine firms' incentives to focus on nutrition in advertising under the various policies adopted during these years, including those adopted after the *Nutrition Labeling and Education Act of 1990* (NLEA).

In the latter half of the twentieth century, dietary research has focused on the role of diet in the major chronic diseases, including heart disease and cancer. Since consumers choose their own diets, this has lead to a debate about when and how to bring this growing body of knowledge to consumers, and of particular relevance for this study, what role food marketing might play through claims about nutrients, diet, and health.

As this debate played out in policy circles, the regulation and enforcement policies governing nutrition-related claims in advertising and labeling changed several times, culminating in the current post-NLEA environment. These regulatory shifts provide the opportunity to test various hypotheses about firm behavior under different enforcement policies. In a series of earlier studies, we examined consumers' dietary

choices during the different regimes, but with one exception, our earlier efforts contained no data on the claims actually made in marketing, only information about the policies governing those claims. This study attempts to fill this void by creating and analyzing a large, systematic database of advertising content for the years 1977 to 1997.

Methodology and Advertising Sample

Television is the medium used most intensively for food advertising, but unfortunately, no archives exist that allow us to create a systematic sample for study. Magazine advertising is the second largest category of food advertising. We compile a large, systematic sample of food advertising from 5 of the leading women's magazines and 3 of the most popular general readership magazines. Claims are extracted from the advertisements using state-of-the-art techniques for reliability, as described in Chapter 2. The sample has 11,647 food advertisements.

Magazines

Better Homes and Gardens
Good Housekeeping
Ladies Home Journal
McCall's
Women's Day
Reader's Digest
Newsweek
Time

Months

February
June
October

Years

1977 - 1997

To our knowledge, these data provide the most comprehensive examination of magazine advertising in a particular market ever undertaken. We believe that the data developed for this project present a very accurate and complete picture of the types of nutrition-related claims made in magazine food advertising over the years 1977 to 1997.

Broad Trends in Food Advertising

Magazine Advertising Grows Relative to TV; Number of Ads Falls As shown in Chapter 3, the price of advertising to 1000 households for both television and magazines has grown faster than other producer prices since the early 1980s, and the price of television advertising has grown relative to magazines. The proportion of food advertising dollars spent in magazines has increased relative to television during the same period, from approximately 9 percent of total spending in the late 1970s to 13.6 percent in 1997. The number of food advertisements in our sample has fallen consistently since the mid-1980s, from approximately 600 ads in 1977 and in 1986, to 400 ads in 1997, a reduction that matches trends in comparable industry data.

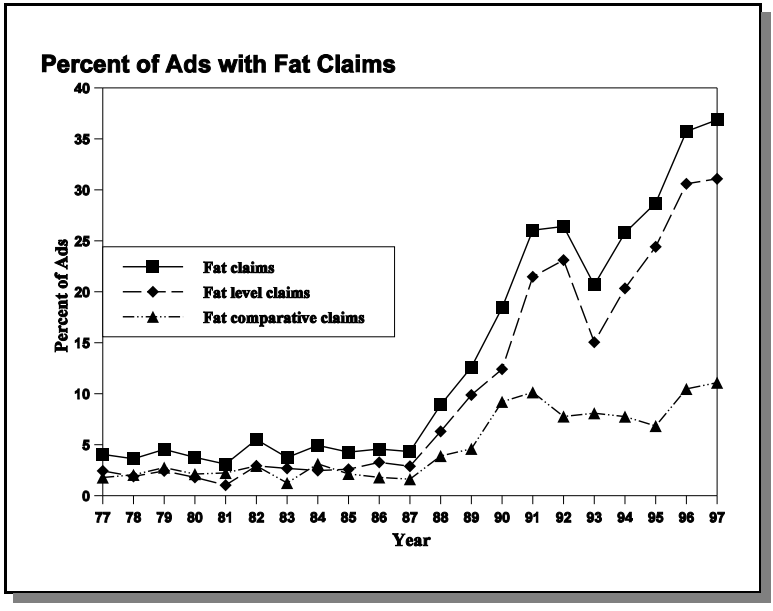
Nonnutritive Claims Are Common in Food Advertising; Most of These Claims Fall Over Time Claims about food characteristics other than nutrients have always been prominent in food advertising. We collect information on claims about taste, aroma, texture, convenience, whether the product is new or improved, its varieties, suggestions for use, price or coupons, and promotional offers.

In each of these categories, except the *new/improved* category, the percent of ads with claims trends downward. The largest trend is for the *taste/aroma/texture* category, where claims are steady at approximately 85 percent of food ads until the mid-1980s, but then fall by about 25 percent to 67 percent of ads by 1997. *New/improved* claims are the only category with a significant upward trend, and this is the category that might be related to the development of nutritionally improved products. Approximately 15 percent of ads in 1977 have a *new/improved* claim, compared to more than 25 percent in 1984 and 1997.

Nutrient Content Claims in Food Ads

Nutrient content claims are statements or terms referring to a specific nutritional characteristic of a food, *e.g., low fat, more fiber,* or *contains vitamin E.* As described in Chapter 4, the study collects data for all the major nutrients, as well as other miscellaneous specific nutrition-related claims. For each nutrient, claims are coded in two subcategories, *level claims*, that describe the absolute amount of a nutrient, such as *low fat* or *high fiber*, and *comparative claims*, that compare the amount of a nutrient in a food to something else (even if unstated), such as *less fat* or *more fiber.*

Fat Claims *Fat claims* include all claims about unspecified types of fat. This category does not include claims about specific types of fat, such as saturated fat, or other specific fat claims, such as, *made with*

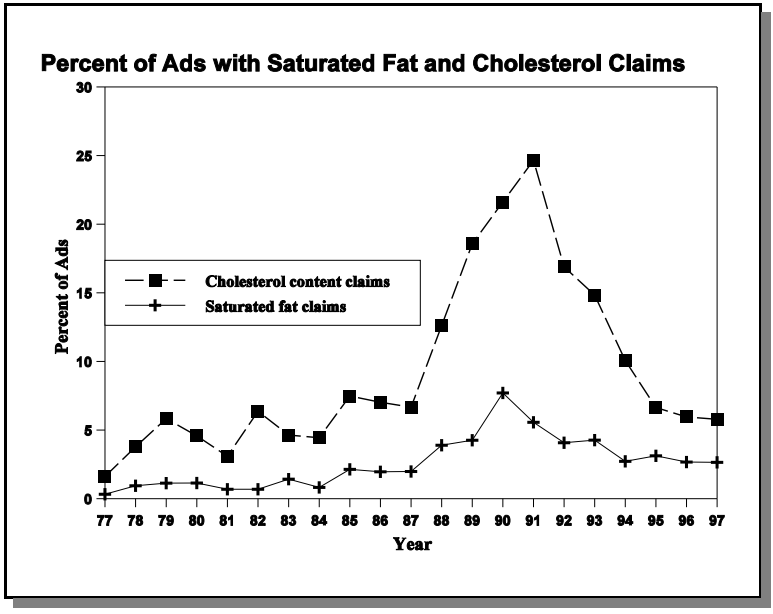


canola oil, which are coded separately. Both *fat level* and *fat comparative* claims are included in the overall *fat* claim category, and an ad can have both types of claims.

In 1997 fat claims are the most frequent nutrient content claim by far.

As shown in the graphic, the dominance of fat claims is a relatively recent phenomenon; fat claims are made in less than 5 percent of ads before 1987. Comparative fat claims grow in parallel to level claims until 1990, when approximately 10 percent of ads use them and where they remain in 1997.

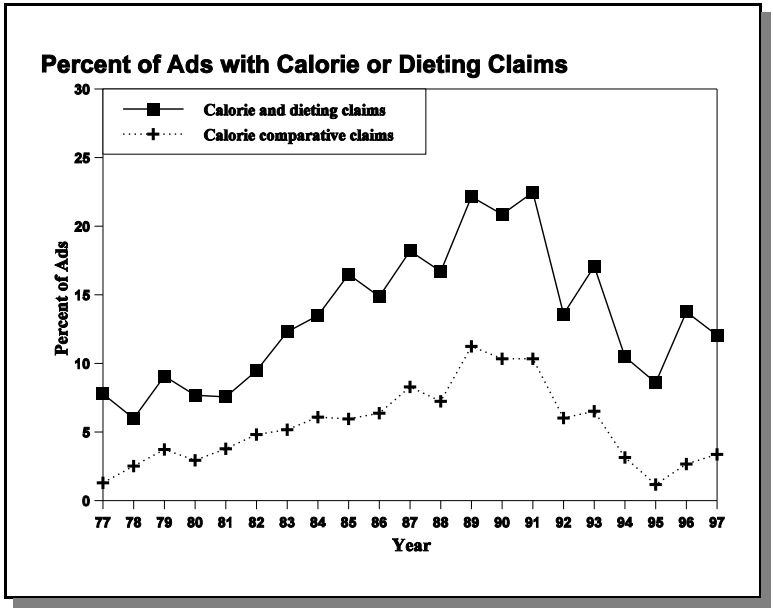
Saturated Fat and Cholesterol Claims Saturated fat and cholesterol are the lipids most clearly identified with the risk of heart disease. The pattern of use of saturated fat and cholesterol claims over



Saturated fat and cholesterol claims fall after 1990. Focus shifts to total fat. time is distinctly different than for fat claims. Both are used increasingly through 1990, before falling substantially after 1990. Comparative claims follow the same pattern and are essentially eliminated by 1997.

Other Nutrient Content Claims Advertising for other major nutrients, such as calcium, fiber, and sodium, are described in Chapter 4. Most generally follow the pattern of rising prior to 1990 and falling or remaining relatively stable in the post-1990 period. Comparative claims generally rise prior to 1990 and fall after 1990 to very low levels.

Calorie and Dieting Claims Claims about calories or weight control, including *diet* claims, are a significant feature of food advertising throughout the period. Calorie claims are approximately



evenly split between level and comparative claims until the early 1990s, when comparative claims fall faster than level claims.

General Nutrition Claims

General nutrition claims are statements or terms, other than nutrient content claims or health claims, that indicate a potential health or nutrient advantage of an advertised food.

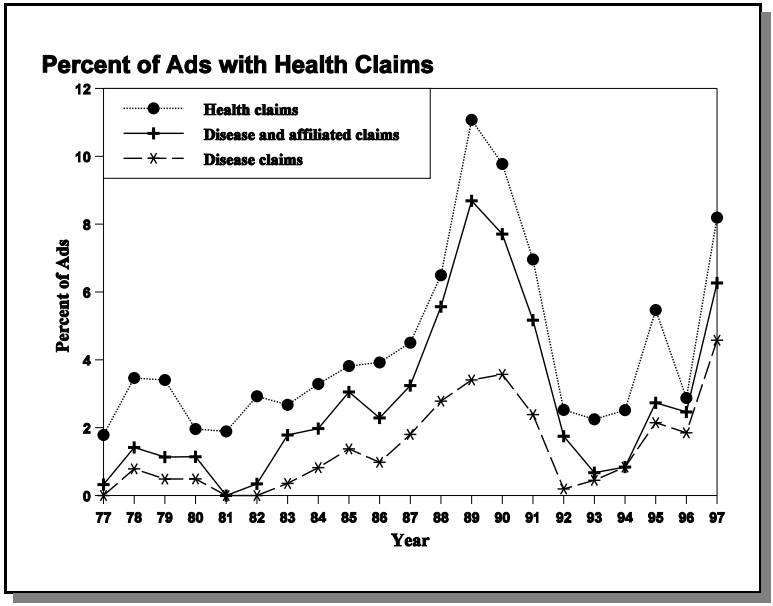
General nutrition claims are quite common in food advertising. In 1977, 50 percent of all ads have a general nutrition claim. Their use rises to nearly 70 percent of ads by 1983 and is steady through 1990, before falling back to 56 percent of advertisements in 1997. Data on subcategories of claims are described in Chapter 4.

General Nutrition Claim Subcategories
health/healthy
smart/right choice
good/better for you
nutritious/nutrients
wholesome
enriched/fortified
light/lighter
lean/leaner
guilt free/no guilt/cheating
fresh
energy
natural/no artificial/real/pure
youth/fitness/well-being
other general nutrition terms

General nutrition claims are more common than specific nutrient or health claims throughout the period, but the gap between them narrows dramatically over time. In the broadest sense, the data indicate a sustained movement towards greater use of specific nutrition claims in place of, or in addition to, general nutrition claims during the years 1977 to 1997.

Health Claims in Food Advertising

Health claims are statements about *specific health effects* of nutrients or foods. Within health claims, we focus on three subcategories of claims: *disease claims*, which explicitly refer to a disease; *affiliated claims*, which refer to conditions closely affiliated with disease, namely, serum cholesterol levels, high blood pressure, and heart claims that are not specific to disease, as in *heart smart*; and *other nondisease health claims*, which are health claims that do not fit in either of the previous categories. These other nondisease health claims, such as *builds strong bones*, would often be considered structure-function claims in FDA terminology. Note that serum cholesterol claims do not include cholesterol content claims, such as *no cholesterol.*



Explicit disease claims are not the majority of health claims during this period. Disease claims are made in less than one percent of ads prior to 1984, and in less than 4.6 percent of ads per year throughout.

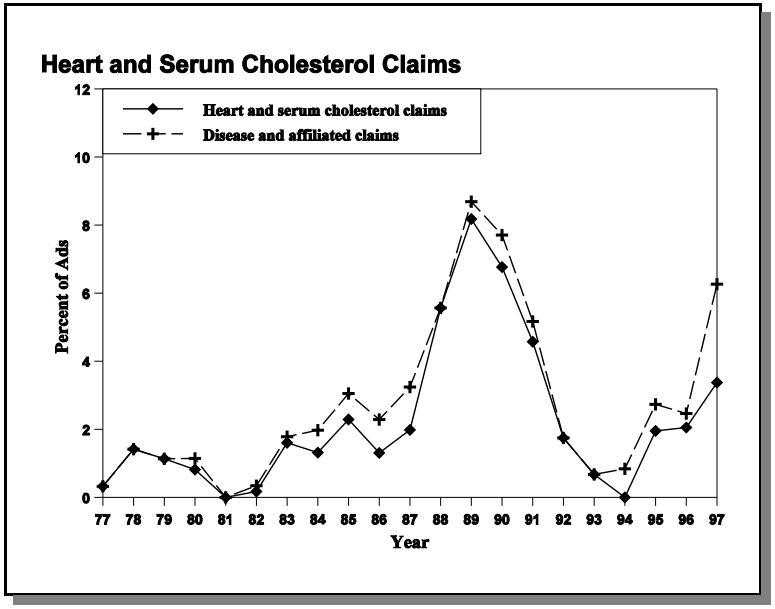
Disease and affiliated claims are the majority of health claims. These claims peak in 1989.

When affiliated claims are considered with disease claims, the picture changes. Disease and affiliated claims do constitute the majority of health claims from 1983 to 1992, and again after 1995. The percentage of ads with a disease or affiliated claim is well under 2 percent through 1982 and peaks at 8.7 percent in 1989. The use of disease and affiliated claims falls precipitously after 1990 and begins rising again only in 1995. By 1997, 6.3 percent of advertisements include a disease or affiliated claim, 72 percent of the 1989 peak.

In the early years of the sample, most health claims are other nondisease health claims, often dealing with bones, teeth, digestibility, or regularity. Similarly, in the early 1990s, when disease and affiliated claim use is very low, use of other nondisease health claims grows. When explicit disease and affiliated claims are not used, producers appear to shift to less explicit health claims where possible.

Heart and Serum Cholesterol Claims Heart-related claims are the most common health claims by far. Heart or serum cholesterol claims are used a bit in the late 1970s, and then begin again in 1983, rising substantially to a peak use of 8.2 percent of all ads in 1989, before falling dramatically in the early 1990s. In 1997, 3.4 percent of ads include a heart or serum cholesterol claim, 41 percent of the peak use.

Heart and serum cholesterol claims are the most common health claims by far.



Cancer Claims Cancer claims are much less frequent than heart claims throughout the years 1977 to 1997. Cancer claims essentially begin in 1984 highlighting fiber content for cereals. Fruit and juice producers joined the cereal producers in the 1980s, but cancer ads never rise above one percent of all food ads during this period. Cancer claims begin again in 1994 and rise to 2 percent of ads in 1997. The post-1990 claims are primarily from juice producers, with cereal producers joining again in 1997 following the FDA approval of a new oat-heart claim that triggered increased health claim competition among cereals.

Other Health Claims The evidence indicates that other health claims are used less frequently. Chapter 5 presents evidence on claims dealing with osteoporosis and bones, hypertension, birth defects, diabetes, cell damage, oxidization, free radicals, tooth decay, and

regularity, as well as a residual category of all other health claims.

Regulation and Advertising Claims

Nutrition-related claims have been the subject of considerable regulatory and enforcement scrutiny during the years 1977 to 1997. Advertising claims are under the primary jurisdiction of the Federal Trade Commission (FTC) and food label claims are regulated by the Food and Drug Administration (FDA). Both agencies initiate major rulemakings during the years of our sample. The study examines the timing of changes in the use of nutrition and health claims relative to key regulatory and enforcement events.

Key Regulatory Events For the statistical analysis, we focus on five key events:

‘ **FTC Food Rule Decisions: April 1980 and December 1982** The first two events are associated with the FTC’s Food Rulemaking of the late 1970s and early 1980s. The first event occurs in April 1980, when the FTC ends Part II of the Food Rule, which would have regulated general nutrition claims, such as *health food* claims, and emphatic nutrition claims, such as *lots of fiber*. The Commission also directs the staff to continue with an effort to define conditions for fatty acid and calorie claims, heart-related health claims, and some other nutrient and general claims. On December 17, 1982, the Commission votes to end the remaining portions of the Food Rule, opting instead to proceed on a case-by-case basis under its general deception authority. Thus, by early 1983 it is clear that nondeceptive claims about nutrition issues, including explicit health claims, will be considered favorably by the FTC. It is in this environment that Kellogg initiates planning for its fiber-cancer advertising campaign that first airs in October 1984.

‘ **FDA Health Claim Proposal: August 1987** Health claims also raise the risk of legal action at the FDA, which prior to 1987 essentially bans all diet-disease claims for foods. After much public discussion, in August 1987 the FDA proposes a rule that would allow nondeceptive health claims on labels under a less restrictive standard. This proposal is widely viewed as reducing firms' legal risk in making certain health claims.

‘ **FDA Rescinds 1987 Proposal: February 1990** After considerable public debate, FDA rescinds the 1987 proposal in February 1990. This is followed in July 1990 by publication of a more restrictive FDA proposal for food claims, and in November 1990 by the *Nutrition Labeling and Education Act of 1990* (NLEA), legislation which lays out standards for revising food labeling rules. The events of 1990 are broadly perceived to restrict producers' use of health and other nutrition claims and to set the stage for a revision of labeling rules under the NLEA.

‘ **Final NLEA Rules Effective; FTC Food Policy Statement: May 1994** Following the enactment of the NLEA, the FDA develops extensive regulations covering all aspects of the food label. This is a period of considerable uncertainty as rules are proposed and finalized. The major proposal is issued in November 1991. Label regulations governing health claims are effective in May 1993 and nutrition claims in May 1994. Also in May 1994, the FTC issues a policy statement harmonizing advertising policy with the new food labeling rules. In December 1995, the FDA also issues a proposed rule to clarify key features of NLEA regulations, but this proposal has not been finalized.

Key features of the NLEA-based rules include a listing of approved

nutrition claims, a prohibition of unapproved nutrition claims, explicit requirements for nutrient content claims, triggered disclosures in some cases, *e.g.,* for comparative claims, and provisions for a limited number of health claims with specific restrictions on which foods can make such claims.

Health Claims and Regulations The policy changes during these years are most pronounced for health claims, especially disease and affiliated claims. This study uses linear and probit regression techniques to examine whether disease and affiliated claims increase or decrease following key regulatory events. Among the findings are the following:

‘ **Health Claim Use Changes With FTC Food Rule Decisions** Following the 1980 FTC decision directing the staff to draw up explicit regulations for heart-health claims, the low level of health claims in use at the time falls to near zero. Conversely, the 1982 FTC decision to return to a case-by-case approach for health claims is followed by a statistically significant increase in the use of disease and affiliated claims to approximately 2 percent of ads.

‘ **Health Claims Increase Significantly Following the 1987 FDA Proposal** The FDA’s August 1987 proposal to allow health claims is followed by a statistically significant increase in the use of health claims in advertising. Health claims increase by 5 percentage points from a base of approximately 2 percent of ads. This evidence is consistent with the view that the FDA label rules have an important influence on producers’ willingness to make advertising claims.

‘ **FDA Reversal and Other 1990 Events Are Followed by Large, Statistically Significant Drop in Health Claims** In the period following February 1990, when FDA reverses its 1987 proposal, health claims in advertising fall rapidly to low levels. The size of the drop is sufficient to eliminate the increase following the 1987 proposal. These results are highly statistically significant in both linear and probit specifications. Again this evidence is consistent with the view that FDA labeling rules affect the claims producers are willing to make in advertising.

‘ **Health Claims Rise Again in the Post-NLEA Environment, But Not to Previous Levels** After 1994, when the FDA’s NLEA-based rules are effective and the FTC has issued its harmonization statement, health claims again increase. The growth in disease and affiliated claims comes mostly in the last two years of the post-1994 period. This pattern suggests that the FDA’s December 1995 proposal to simplify the rules for health claims may have been important to advertisers. This proposal, which has never been finalized, makes it clear that the long and rather complicated model statements in the original NLEA health claim regulations are not required and proposes other simplifications in the rules.

Evidence indicates that advertisers respond significantly to regulatory rules for health claims.

Nutrient Claims and Regulation Regulatory events could also affect the use of nutrient content claims, both directly because the rules govern nutrient claims, and indirectly because nutrient claims are often used with health claims or may be spurred by the increased focus on diet-health issues engendered by those claims.

We focus on the results for 8 primary nutritional characteristics of foods: total fat, saturated fat, cholesterol, sodium, fiber, calcium, vitamins/minerals, and calorie/diet claims. Among the findings are the following:

‘ **1980 End of Part II of the FTC's Food Rule Is Not Followed by Much Systematic Change in the Use of Nutrient Claims** Only 3 of the 8 nutrients have significant movements after this event, indicating only limited change. Fiber and sodium claims increase significantly.

‘ **1982 End of the FTC Rulemaking and 1987 FDA Proposal Are Both Followed by Systematic Increases in Nutrient Content Claims** Both of these events relax the policy towards health claims, and the 1982 event affects some nutrient claims directly. Both events are followed by systematic changes in the use of nutrient claims. Significant changes occur for 5 out of 8 nutrients after the first event, and for 6 out of 8 nutrients after the second event. All of the significant changes are positive, indicating a systematic increase in nutrient claims for most nutrients after these events.

‘ **After 1990 and 1994, Growth in Nutrient Content Claims Slows and Then Drops** After 1990, 5 of the 8 nutrients show significant changes, but only 3 of the 5 increase. After 1994, when the NLEA rules are final, 6 of the 8 nutrients have significant changes, but only 2 of the 6 increase. Fat, and to a lesser extent calcium, are the two nutrients where content claims continue to grow in the post-1994 period. In contrast, producers reduce their focus on saturated fat, cholesterol, sodium, and calories after the NLEA rules in 1994. These changes are all statistically significant.

‘ **Comparative Claims Rise Prior to the NLEA Rules and Fall After the NLEA Rules** Comparative claims are more restricted under the NLEA rules and must include several triggered disclosures. Prior to the NLEA, the use of comparative claims increases significantly for 5 of 8 nutrients after 1982 and for 6 of 8 nutrients after the health claim policy change in 1987. After the NLEA, use of comparative claims changes significantly for 5 of 8 nutrients after the 1990 event, and for 6 of 8 nutrients following the 1994 events, but only 3 of these 11 significant changes are increases. Most notably, when the NLEA rules are final in 1994, comparative claims fall for 7 of 8 nutrients (6 significant). The only exception is for total fat, which exhibits no significant change.

One of the most consistent changes in the post-1994 period is the systematic movement away from comparative claims for all major nutrients except total fat.

General Nutrition Claims and Regulation General nutrition claims, such as *healthy* or *nutritious*, are also potentially affected by the regulatory events of this period. Some general terms, such as *healthy*, are directly regulated, and more broadly, these general claims could complement or substitute for specific claims subject to the rules.

Statistical results are presented in Chapter 6. The use of general health claims seems to fall when specific claims increase and to rise when specific claims are more restricted, suggesting that general claims substitute somewhat for more specific claims when those are restricted.

Health Claims Across Food Groups We would expect the changing regulations to affect advertising in some food groups more than

others. Some foods have a larger role to play in improving diets. Moreover, under the rules implementing the NLEA, health claims are limited to foods that are "best" on the dimensions relevant to the particular health claim, "not bad" on other key dimensions, and "nutritious" in the sense that they provide a minimum level of nutrition on at least one of six specified nutrients. By limiting health claims to these particular foods, it is hoped that producers will find it more profitable to promote these foods, and that as a result consumers will be more successful in improving their diets. If these presumptions are correct, the NLEA rules should increase health claims for these foods, increase advertising for them, and reduce the use of health claims by sellers of other foods.

These issues are examined in Chapter 6. Among our findings:

‘ **Following 1987 FDA Proposal, Health Claims Increase in the Cereal/Bread, Fats & Oils, Meat/Egg, and Poultry/Fish/ Grain Categories** The largest increases in health claims occur after the 1987 proposal, with the percentage of ads with health claims increasing by 25.3 percentage points for Fats & Oils, 16.5 points for the Cereal/Bread category, 10.3 points for Meat/Eggs, and 2.0 points for Poultry/Fish/Grains.

‘ **Number of Fruit, Vegetable, and Juice Advertisements Drops Significantly After 1990; Only Orange Juice Ads Have Health Claims** The amount of advertising in the Fruit/Vegetable/ Juice category drops significantly in the post-NLEA period. In our sample, the category averages approximately 100 advertisements per year through 1990, when the number begins dropping, and stabilizes after 1993 at approximately 50 ads per year, half the pre-1990 level.

Advertising in the category drops sharply, but orange juice producers continue to use health claims.

Those producers who continue to advertise are more likely to use health claims. But with one exception, the only health claims in the category after 1990 are from orange juice producers.

‘ **After 1990 Health Claims Increase for Dairy; Decrease for Fats & Oils, Meats/Eggs, and Poultry/Fish/Grains** In the post-NLEA period the percentage of advertising with health claims increases significantly for the Dairy category, which grows by 5.1 percentage points. More sizable effects are found in the food categories where health claims fall. The percentage of advertising with a health claim falls by 43.7 percentage points for Fats & Oils, by 10.4 points for Bread/Cereals, by 7.4 points for Meat/Eggs, and by 2.5 points for Poultry/Fish/Grains.

‘ **Advertising Does Not Increase in Any Food Category in the Post-NLEA Years** Regressions relating the number of advertisements per month to the key regulatory events show remarkable stability prior to 1987. After the 1987 proposal, the only category with a statistically significant change is Desserts/Snacks, where the number of ads per month drops by 34 percent. In the post-1990 period, advertising falls for 8 of the 9 food groups, with significant reductions for Cereal/Bread, Fruit/Vegetables/Juice, and Fats & Oils. After the final NLEA rules in 1994, advertising falls for 6 of the 9 food groups, with Fats & Oils and

Evidence shows no increased advertising in “good food” categories in the post-NLEA period but reduced advertising in other select categories.

Fruit/Vegetables/Juice experiencing further significant declines. The 3 food groups where advertising increases after 1994 all reflect a return to the level of advertising in 1990.

‘ **Health Claims Not Used for Desserts/Snacks or Soft Drinks Before or After the NLEA** Some provisions in the NLEA rules are motivated by a concern that producers of empty or otherwise nutritionally deficient foods would use health claims in marketing. In fact, the requirement that foods must have certain nutrition value to qualify to make a health claim is commonly called the “jelly bean rule,” reflecting the fact that without the requirement, an advertiser of jelly beans could legally make a heart claim under NLEA rules (jelly beans are low in fat and saturated fat and contain no cholesterol).

To explore the magnitude of this perceived problem, we examine two food categories in detail: Drinks, which includes all carbonated soft drinks and all fruit-flavored beverages (but not juice or milk), and Desserts/Snacks, which includes desserts, sweets, donuts, salty snacks, and related items. The evidence indicates that with a few trivial exceptions, health claims are never used in marketing foods from either of these categories. The amount of advertising falls in both categories over time, but these declines precede the NLEA. Thus, the evidence provides no support for the view that health claims for “junk foods” is a significant concern during these years.

Summary of Findings on Regulations Overall, the evidence is consistent with the view that the content of food advertising varies considerably with changes in regulation and enforcement. The use of health claims varies most, as expected given the significant changes in policy towards these claims. But nutrition claims also vary a great deal

following these events, as competition on health issues increases or decreases. Under the NLEA rules, the focus in advertising has shifted primarily to total fat away from saturated fat, cholesterol, calories, and other nutrients. Also, in the post-NLEA years, producers have moved away from comparative claims for all nutrients except total fat. The reasons for these results and their effect on consumer diets are important areas for further research.

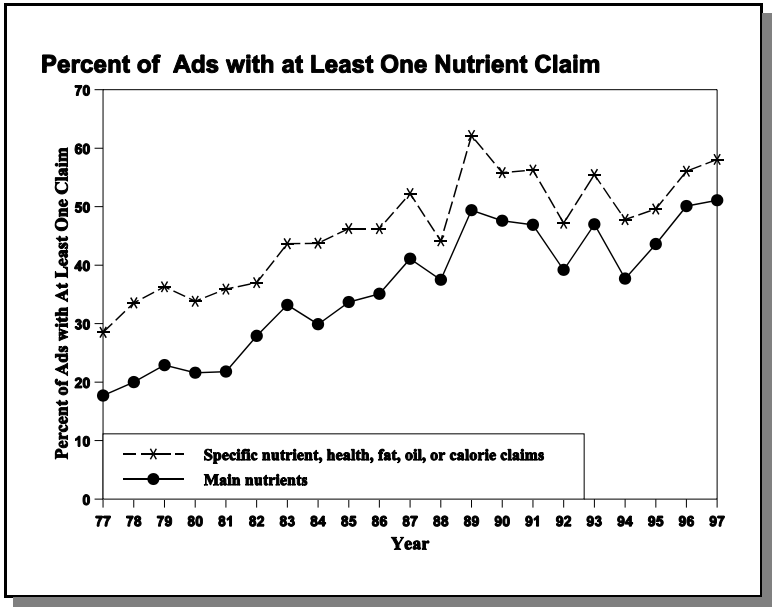
Economics of Advertising: Issues and Evidence

Advertising is a major feature of consumer good markets. Firms have an incentive to try to draw consumers to consider their products, especially consumers who will become regular customers. By highlighting product characteristics in advertising, firms can attract consumers who value those characteristics, and if satisfied with the product, they are more likely to become regular customers. This simple mechanism underlies the information theory of advertising.

Specific Claims in Advertising The economics literature contains considerable evidence that the introduction of advertising into markets can have a positive effect on market performance, through lower prices, product improvements, or beneficial changes in consumer purchases, for instance. Presumably because of the difficulties of acquiring data on the content of advertising, there is surprisingly little direct evidence on the information content of advertising and the economic forces that shape it. As a result, there is little evidence to judge whether advertising acts strictly as a signal of quality, a visible public expenditure, or through direct information provision.

These issues are explored in Chapter 7 of the report. Among our findings are the following:

‘ **Specific Nutrition Claims Have Become a Major Feature of Food Advertising** Specific nutrition claims are informative-type claims. A measure of their presence provides evidence on the information content of advertising in this dimension. We examine this issue in two ways: first, by determining the percentage of advertisements that include at least one specific nutrient content claim for any of 12 main nutrients, such as total fat, saturated fat, *etc*., and second, by determining the percentage of advertisements that have *any* specific nutrition-related claim recorded in our coding system. This second category includes the main nutrient content claims, as well as other specific nutrition-related claims, such as *made with canola oil*, *sugar free*, *etc*.



Both measures indicate substantial growth in the percentage of advertising with specific nutrition claims during the first half of our period. Since the late 1980s, however, the percentages have stabilized; approximately 40-50 percent of ads include claims about main nutrients and approximately 50-60 percent include claims from our broader class of specific nutrition-related claims. Despite changing policies and market conditions, approximately half of all food advertising since the late 1980s includes specific nutrition claims.

‘ **Other Specific Informative Claims Are Also Common in Food Advertising** Our data includes information on several other types of specific claims in food ads. Approximately 40 percent of ads include specific information for using the product, often by providing recipes that use the food. More than 50 percent of the ads include information about different varieties of the product, such as available flavors or package sizes. Approximately one-third of the ads make an explicit claim about the product's convenience for some use. Approximately 20 percent of the ads highlight that the product is new or has been improved. Finally, approximately 80 percent of the ads make a claim about the taste, texture, or aroma of the food.

Most food ads make multiple informative-type claims.

Taken together, this evidence illustrates that virtually all food advertisements in our sample make specific claims about the advertised product. In fact, most ads make multiple informative-type claims. Assuming that the nutrition label is credible to consumers, most of these claims involve *search* or *experience* characteristics, that is, characteristics that consumers can verify at purchase or after use.

Advertising and Unfolding: Does Competition Lead to Greater Information Disclosure? One of the economic issues in advertising is the potential bias in the types of information provided by advertisers. Advertisers have an incentive to tell potential customers what is good about their product but not what is bad. This issue is of particular concern in multi-attribute products, such as foods, where claims about the desirable features could draw attention away from less desirable and unrevealed characteristics. Economic theory suggests that in many cases competition among producers can substantially reduce or eliminate this bias in the information provided by the market as a whole. This unfolding hypothesis holds that firms gaining sales by highlighting just one dimension will soon face competition from firms who point out superiority in other important dimensions as well.

The concern about incomplete information underlies some of the changes implemented in the NLEA rules. Under the NLEA rules, if producers make nutrient claims on their labels, they are required to highlight undesirable characteristics. Of course, triggered disclosures also reduce the incentive to make the original nutrient claims, because the claims are now more costly. We examine the unfolding hypothesis in several ways. Among our findings:

‘ **Mean Number of Lipids Featured in Ads Peaks in 1991; Falls 20 Percent After the NLEA** We have data on claims for 5 primary lipid characteristics: total fat, saturated fat, polyunsaturated fat, monounsaturated fat, and cholesterol. The mean number of lipid characteristics in ads rises only slightly between 1977 and 1987, but then rises from .13 characteristics in 1987, to .57 characteristics in 1991, before falling to .47 characteristics post-NLEA period.

The mean number of lipids in an ad is the product of two factors, the percentage of ads that have *any* lipid claim, and the average number of lipids in an ad that has at least one claim. The percentage of food ads with a lipid claim grows throughout the period examined here, slowly at first to 10 percent of ads in 1987, then strongly to 34.4 percent in 1991, and further to 39.5 percent of ads in 1997. Thus, the reduction in the mean number of lipids in ads in the post-NLEA period is due to changes in the number of lipid characteristics in ads that have a lipid claim.

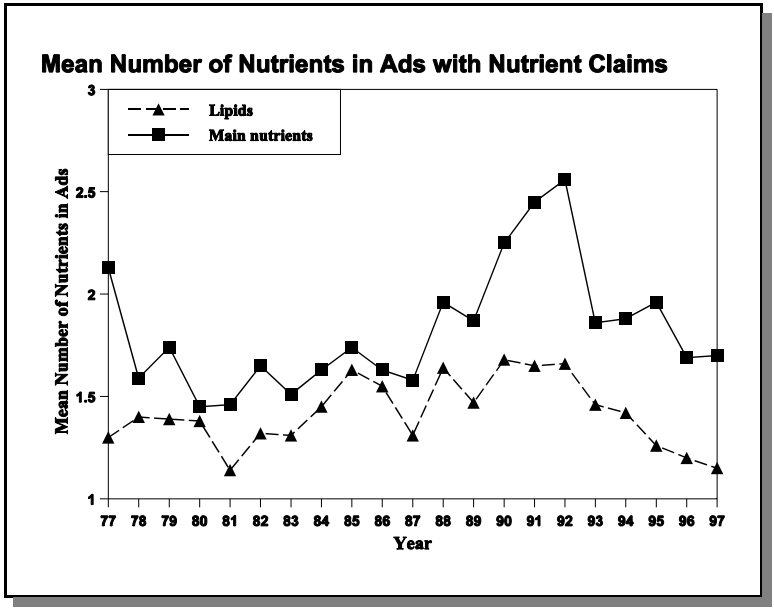
The number of lipids in ads with a claim is steady at approximately 1.3 characteristics throughout the late 1970s and early 1980s, rises to 1.65 characteristics in 1991, and then falls back to 1.26 characteristics in 1997. To put this in perspective, in 1977, 1.1 percent of ads have claims for more than one lipid characteristic; by 1983, this has risen to 2.5 percent, by 1991 it rises strongly to 20.1 percent of ads, and by 1997 it has fallen sharply back to 5.0 percent. This evidence highlights the competitive focus on saturated fat and cholesterol claims that rose in the late 1980s before falling back dramatically after the NLEA rules.

‘ **Competition on Main Nutrients Peaks in 1991** Using a broader index of 12 major nutritional components of foods, we find results similar to those for lipids. The mean number of nutrients featured in advertising begins growing earlier than for lipids, but also peaks in 1991, before dropping 22 percent by 1997.

As with lipids, movement in the overall mean is more the result of changes in the number of different nutrients featured in ads than in the number of

By 1997, the number of nutrients in the average ad with claims has returned to the level of the mid-1980s, a 33 percent drop.

advertisements making nutrient claims. If a nutrient claim is made in an ad, the mean number of different nutrients in the ad rises sharply during the 1980s and decreases substantially during the 1990s.



For example, in 1983 4.0 percent of advertisements have claims for 3 or more different nutrients. This rises sharply to 19.9 percent of ads in 1991, before falling back to 8.5 percent of ads in 1997. As with lipids, this evidence suggests that the competitive pressures on nutritional issues of the late 1980s led advertisers to highlight more nutritional characteristics of their products than they had earlier. In the post-NLEA period, nutritional claims in advertising are more limited, focusing on one or two nutrients only. Thus, as for lipids, this evidence provides support for considerable competitive unfolding and does not support the hypothesis that the NLEA environment induces more complete nutrition

profiles in ads.

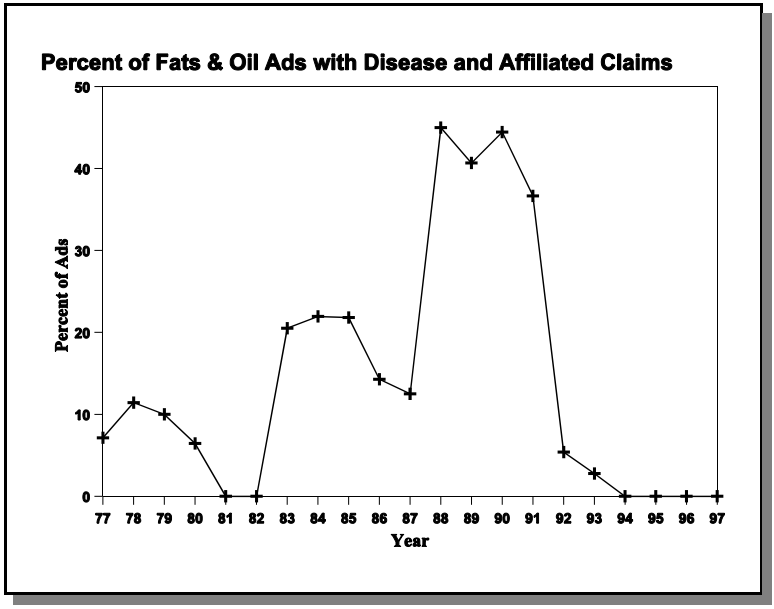
Better understanding of the reasons for these changes and whether they have improved consumer diets are important areas for further research. In earlier work (Ippolito and Mathios, 1996), for instance, we found that the fat characteristics of consumers' diets improved at a faster rate in the late 1980s, compared with the rate between 1977 and 1987. It would be valuable to know whether diets are continuing to improve and at what rate under the policies adopted in the 1990s.

Is There Competition Among "Bads?" The Case of Fats and Oils The unfolding hypothesis implies that firms with a *relative* advantage over their competitors will be led to advertise that advantage. Thus, even advertisers in "bad food" categories may be induced to focus on nutrition and health as long as consumers are sufficiently aware of nutrition issues and differences on nutrition dimensions *within* the category are sizable.

The Fats & Oils category provides a good opportunity to test the unfolding hypothesis in a "bads" setting. These products generally contain considerable fat, or are substitutes for such products, but they vary substantially in the *type* of fat and in the amount of fat per serving. Heart disease has been linked to some types of fat, particularly saturated fat, cholesterol, and transfatty acids, but not others. So substitutions among fats are important. Under the NLEA rules, direct health claim competition is no longer allowed for products that are not low in fat. Among our findings:

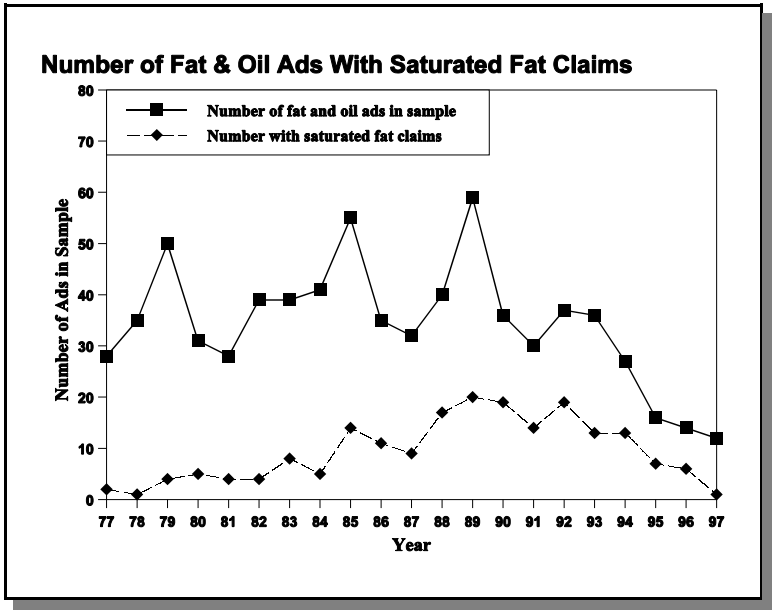
‘ **Disease and Affiliated Claims Are a Major Feature of Competition in the Fats & Oils Market When Allowed** Even in the late 1970s, between 6.5 and 11.4 percent of fat and oil advertising

per year includes serum cholesterol claims. These claims fade as the FTC Food Rulemaking considers explicit regulation of heart-related claims, but then rise dramatically and immediately to more than 20 percent of ads in 1983, after the end of the rulemaking. By 1988, 45 percent of fat and oil ads include disease or affiliated claims dealing with heart issues, as producers compete aggressively on choices within the category. These claims remain an important feature in the category until 1991, when they fall from 36.7 percent of ads in 1991 to 2.8 percent of ads in 1992, following the November 1991 publication of proposed NLEA rules prohibiting health claims for fat products. After the NLEA rules are in effect, health claims do not reappear through 1997.



Taken together, this evidence indicates that competition on *bads* can become a major focus of competition in a particular category, as in fats and oils here. Having less of a bad is, of course, a good thing, and apparently advertisers believe that they can communicate the health importance of these differences to consumers in a way that enhances their products' sales.

‘ ***Advertising For Fats & Oils Falls Dramatically in Post-NLEA Period; Few Compete on Nutrition*** As the focus on health issues fades in the fats and oils category, the amount of advertising also falls dramatically. In 1997, the number of ads is at only 20 percent of its peak level in 1989 and at only 43 percent of its level in 1977. The number of ads with saturated fat claims also drops to near zero. By 1997, few advertisers in the category appear to compete on the health or



nutritional characteristics of fat and oil products.

Advertising and Broader Audiences: Do Producers Reach Out with News? One of advertising's possible strengths is its potential to reach out to consumers with information. As a final test of advertising's information role in markets, we examine advertisers' use of different types of magazines to reach consumers with health news. In particular, we contrast the use of health claims in general readership magazines (*Time*, *Newsweek*, and *Readers' Digest*) with that in women's magazines (*Better Homes & Gardens*, *Good Housekeeping*, *Ladies' Home Journal*, *McCalls*, and *Women's Day*). Women's magazines are the normal magazine medium for food advertising, having 10 times as many ads as the general readership magazines at the start of our period.

‘ **Food Advertising in General Readership Magazines Increases During Periods of Increased Health Claim Advertising** The idea that producers reach out to the broader audience with health information is supported by data on the number of ads in the two types of magazines. The number of food advertisements in general readership magazines increases following 1987, reaching 140 percent of its 1977 level in 1989, at the height of the health claims period. The number of ads falls in the early 1990s, before rising again in the post-NLEA period. In contrast, the number of ads in the women's magazine sample has been trending downward since the mid 1980s.

‘ **During Periods of Change, Health Claims Are More Likely in General Readership Magazines** As the regulatory constraints are lifted in the mid-1980s and again after the NLEA rules are in place, the use of disease and affiliated claims rises in women's magazines, but it rises considerably more in general readership

magazines, and these magazines have large audiences. In 1989 at the peak, 20.9 percent of all food ads in our general readership magazines contain a disease or affiliated claim compared to 6.6 percent of ads in our women's magazines.

Taken together, these data are generally consistent with the hypothesis that producers will attempt to spread information that expands demand for their products to broader audiences when allowed to do so.

Concluding Remarks

This report examines a wealth of data on the content of food advertising during the years 1977 to 1997. The data make it clear that nutrition-related claims have become a major feature of food advertising and an important focus of competition. The evidence also makes it clear that regulatory rules and enforcement policy matter – the content of food advertising shifts markedly as the policies towards nutrition and health claims vary over these years.

Among the changes in the post-NLEA period, several findings are worth noting. The nutritional focus in advertising has narrowed substantially. Total fat has become the primary nutritional focus of advertising competition, away from other major nutrients including saturated fat, cholesterol, and sodium. Comparative claims have dropped to very low levels for all nutrients except total fat. For health claims, the most dramatic change has occurred in the market for fats and oils, where competition on the health reasons to choose one fat over another has been eliminated in advertising. The evidence also shows no increased advertising focus on "good foods," and in fact, advertising for fruits and vegetables has fallen significantly since the NLEA.

The ultimate question of which regulatory and legal policies best serve consumer interests requires that we relate the advertising changes observed here to consumers food choices. Until that work is done, this evidence provides us with an important part of that evaluation: objective and detailed information on the content of food advertising under the different policies examined here.

Marketing is often controversial. Producers are trying to sell their products. But marketing claims about important product characteristics – subject to market and enforcement limits on deception – unleash competitive forces that play an important role in shaping the mix of products available in the market and in attracting consumers to products with desired characteristics. As science has shown the importance of nutrition in disease risks, advertising has focused increasingly on nutritional characteristics of food. In crafting policy that serves consumers' interests, it is important that we understand the role of marketing in consumer goods settings. We hope this evidence contributes to that effort.