

George Mason University School of Law
Working Paper Series

Year 2004

Paper 3

Obesity and Advertising Policy

Todd J. Zywicki* Debra Holt†

Maureen Ohlhausen‡

*George Mason University- School of Law, tjz2@law.georgetown.edu

†Federal Trade Commission - Office of Policy Planning, dholt@ftc.gov

‡Federal Trade Commission - Office of Policy Planning, mohlhausen@ftc.gov

This working paper is hosted by The Berkeley Electronic Press (bepress) and may not be commercially reproduced without the permission of the copyright holder.

<http://law.bepress.com/gmulwps/art3>

Copyright ©2004 by the authors.

Obesity and Advertising Policy

Todd J. Zywicki, Debra Holt, and Maureen Ohlhausen

Abstract

It is clear that Americans are getting fatter, both adults and children. This development has led some to call for a ban on food advertising directed at children. There are numerous practical and constitutional difficulties with such a policy. This article poses a more fundamental question - even if feasible, would restricting food advertising do anything to reduce obesity or even slow its trends? The article also considers whether the social costs of banning advertising could outweigh the social benefits of such an action.

This article provides a review of the literature on the fundamental causes of the American obesity problem as well as the purported contribution of children's advertising to the problem. The final conclusion is inescapable - the available evidence does not support the theory that children's exposure to food advertising has significantly contributed to increased children's obesity. Although children's obesity rates have skyrocketed during the past two decades, the available evidence indicates that children's exposure to food advertising has remained constant or has even declined during that same period.

This article first describes the existing theories and empirical evidence regarding the causal factors in the American obesity problem. Second, the article examines in detail the claim that the rise in children's obesity has been caused in whole or in part by food advertising directed at children. Available evidence and observations regarding the exposure of children to food advertising fail to support the hypothesis that increased food advertising directed at children has significantly contributed to the rise in childhood obesity. As a result, there is also little reason to believe that greater restrictions on advertising directed at children will do much at all to staunch the increase in children's obesity. Third, the article reviews the existing literature on the positive effects that advertising can have on increasing consumer knowledge and choice. Thus, even though there is little evidence that

advertising is the cause of the obesity problem, it is likely that advertising can play a positive role in being part of the solution to obesity by providing more information to consumers and by providing incentives to create and market healthier food alternatives.

OBESITY AND ADVERTISING POLICY

BY TODD J. ZYWICKI, DEBRA HOLT, AND MAUREEN K. OHLHAUSEN

CONTACT AUTHOR:

TODD J. ZYWICKI

VISITING PROFESSOR OF LAW

GEORGETOWN UNIVERSITY LAW CENTER

600 New Jersey Avenue, NW Washington, DC 20001

202-662-9937

tjz2@law.georgetown.edu

Abstract

It is clear that Americans are getting fatter, both adults and children. This development has led some to call for a ban on food advertising directed at children. There are numerous practical and constitutional difficulties with such a policy. This article poses a more fundamental question – even if feasible, would restricting food advertising do anything to reduce obesity or even slow its trends? The article also considers whether the social costs of banning advertising could outweigh the social benefits of such an action.

This article provides a review of the literature on the fundamental causes of the



American obesity problem as well as the purported contribution of children's advertising to the problem. The final conclusion is inescapable – the available evidence does not support the theory that children's exposure to food advertising has significantly contributed to increased children's obesity. Although children's obesity rates have skyrocketed during the past two decades, the available evidence indicates that children's exposure to food advertising has remained constant or has even declined during that same period.

This article first describes the existing theories and empirical evidence regarding the causal factors in the American obesity problem. Second, the article examines in detail the claim that the rise in children's obesity has been caused in whole or in part by food advertising directed at children. Available evidence and observations regarding the exposure of children to food advertising fail to support the hypothesis that increased food advertising directed at children has significantly contributed to the rise in childhood obesity. As a result, there is also little reason to believe that greater restrictions on advertising directed at children will do much at all to staunch the increase in children's obesity. Third, the article reviews the existing literature on the positive effects that advertising can have on increasing consumer knowledge and choice. Thus, even though there is little evidence that advertising is the cause of the obesity problem, it is likely that advertising can play a positive role in being part of the *solution* to obesity by providing more information to consumers and by providing incentives to create and market healthier food alternatives.

Keywords: Obesity, Health Claims, Economics of Advertising

JEL Classification: I1, I12, I18, K00, Q18

Obesity and Advertising Policy

By Todd J. Zywicki, Debra Holt, and Maureen K. Ohlhausen¹

Introduction

It is clear that Americans are getting fatter, both adults and children.² This development has led some to call for a ban on food advertising directed at children.³ As noted by other participants in this symposium, some believe that there are numerous practical difficulties with

¹ Todd Zywicki is Professor of Law, George Mason University School of Law; Former Director, Office of Policy Planning, Federal Trade Commission. Debra Holt is an economist, Bureau of Economics, Federal Trade Commission. Maureen Ohlhausen is Acting Director, Office of Policy Planning, Federal Trade Commission. We thank Harris Ziskroit for his excellent research assistance. The opinions expressed in this article are the authors' alone and do not necessarily represent the views of the FTC or its Commissioners.

²Department of Health and Human Services, *Chartbook on Trends in the Health of Americans*, Health, United States (2002).

³See Brian L. Wilcox et al., American Psychological Association, *Report of the APA Task Force on Advertising and Children* (Feb. 20, 2004); Center for Science in the Public Interest, *Pestering Parents: How Food Companies Market Obesity to Children* (Nov. 2003).

such a policy.⁴ This article poses a more fundamental question — even if feasible, would restricting food advertising do anything to reduce obesity or even slow its trends and would the social benefits of banning advertising outweigh the costs of such an action?

Part I provides a critical review of existing literature on the causes of rising obesity rates. Competing theories have grown as fast as the American waistline; this is a systematic effort to critically assess some of the leading theories and the empirical support for them. Part II moves to the more specific issue of the possible contribution of advertising to the obesity problem. It examines both theory and empirical evidence and concludes that the available evidence to support any proffered link between food advertising and obesity is quite limited and often contrary to the thesis. We focus on the hypothesized link as it pertains to children since the calls to ban food ads are restricted to those directed to children. The evidence we examine is related to television food advertising; other marketing efforts directed to children are clearly relevant but there is little information about their scope.

Some commentators who acknowledge that advertising may not be a strong factor in the rise of obesity nevertheless support a ban on the ground that it could not hurt. Part III asks, if advertising is not a significant cause in the rise in obesity, does it hurt to prohibit advertising, or can advertising have a positive influence on reducing the problem? This section examines ways in which changes in food labeling rules could play a role in bringing information to consumers and adding to firms' incentives to focus on the calorie profiles of their foods.

⁴ See J. Howard Beales, III, *Advertising to Kids and the FTC: A Regulatory Retrospective That Advises the Present* ___ GEORGE MASON L. REV. ___ (Forthcoming 2004).

I. Understanding the Causes of the Rise in Obesity

There are numerous hypotheses regarding the causes of increased rates of overweight and obesity among Americans. Among these hypotheses are: that long-run technological change has led to a steady decrease in the relative cost of food and an increase in the relative cost of physical activity; that more recent technological innovations have made the centralized preparation of fast food and convenience food possible, which has in turn lowered the time cost of food; that women's increased labor force participation has increased their value of time and thus prompted greater demand for convenience food and fast food; and that pervasive food advertising has increased the demand for those advertised foods, which are typically calorie dense. This Part of the article briefly reviews several of these hypotheses.

Rates of obesity and overweight can rise or fall for many different reasons, but the central physiological reason is a change in net caloric intake. Weight gain occurs whenever calories ingested exceed the calories expended through basic metabolism and activity; thus either a rise in calories ingested or a reduction in calories expended can lead to weight gain. One pound of weight gained represents approximately 3500 excess calories.⁵ So, for example, between 100 and 200 excess net calories per day would lead to a weight gain of just over ten pounds in one year.⁶ Hill *et al.* note that the National Health and Nutrition Examination Surveys indicate an

⁵James O. Hill, Holly R. Wyatt, George W. Reed, and John C. Peters, *Obesity and the Environment: Where Do We Go from Here?* 299 *SCIENCE* at 853-55 (Feb. 7, 2003).

⁶Ten pounds represents 35,000 additional calories, which is just under 100 calories per day for one year. But ingested energy is not stored with perfect efficiency — with estimates as low as 50% efficiency — thus the range of 100 to 200. *Id.*

average weight gain of 1.8 to 2.0 pounds per year in the 1990s.⁷ They then show that the median weight gain is consistent with 15 additional net calories per day and that the 90th percentile weight gain is consistent with an extra 50 net calories per day. Given that food is not transformed into usable energy with perfect efficiency, Hill *et al.* estimate that the weight gain is associated with an increase of 15-30 calories for the median weight and an increase of 50-100 calories for a person at the 90th percentile.⁸ Thus we see that, in theory at least, the changes in food consumption and activity levels required to halt, or reverse, the increase in overweight and obesity are quite small.⁹

The number of calories consumed could rise for many reasons — people could simply eat more, the caloric density of the food that they eat could rise, or they could change their diet composition to ingest greater calories. In turn, an increase in food consumption could result from any number of different grounds — food could become less expensive (perhaps because of technological advances in farming techniques) or calorie-dense foods could become less expensive relative to other foods. Additionally, there could be a change in food preparation costs. For instance, if people work more (as can occur when both parents enter the workforce), then the time spent cooking and preparing food may become more expensive in opportunity cost terms relative to the monetary value of the food. Thus, there may be a greater tendency to eat restaurant or take-out food, which is typically more calorie-dense than home-prepared foods. In

⁷ *Id.*

⁸Some studies estimate that the efficiency may be as low as 50%. Two pounds is 7000 extra net calories, which thus implies an increase of 19-38 per day.

⁹One ounce of cheese has approximately 100 calories and a one mile walk expends approximately 100 calories.

addition, food is probably a normal good in economic terms, meaning that people generally enjoy eating, so that as they get richer, they will want to consume more good-tasting (and generally higher calorie) food, other things equal.

Alternatively, obesity could rise as a result of a decline in energy expenditure. For instance, as will be discussed below, there appears to have been a general change in the economy that has reduced the physical labor needed to perform many jobs. This has likely led to a reduction in “utilitarian” energy expenditure, *i.e.*, “exercise” gained while doing something else. As more people work in front of computers instead of behind plows, the amount of utilitarian energy expended may have fallen. Similarly, as an economy gets richer and the marginal value of an individual’s time increases, the opportunity cost associated with exercise rises. Thus, if a lawyer’s billable rate rises from \$100 per hour to \$150 per hour, the opportunity cost of taking off one hour and going to the gym also rises by 50 percent, which may reduce the amount of exercise in which people engage.¹⁰ In other words, previously in American history workers were essentially paid to exercise by engaging in vigorous manual labor on the job. Today, individuals themselves have to pay to exercise, both by making the out-of-pocket expenditure to join a gym, for instance, as well as through the cost of exercising instead of working (as opposed to exercising *by* working). The ubiquity of cars, elevators, and the like may have also reduced the amount of utilitarian energy expended simply by getting from one place to another.

While it is clear that the rise in obesity is the result of a change in the net calorie balance, it is not clear to what extent increased consumption and decreased energy expenditure have

¹⁰ Of course, there is also an income effect that offsets this substitution effect, so the net effect on exercise is ambiguous as an *a priori* matter.

respectively contributed to the change. Some commentators have advanced a hypothesis that a primary cause of increased obesity is the effect of advertising of food products, which translates into changes in eating habits, especially in children. Advertising, some argue, causes people either to eat more food in general or to eat a less healthy diet than would otherwise be consumed. A review of this theory and available evidence is the task of this article. In order to understand the role that advertising may or may not play in the growing obesity problem, however, it is necessary first to examine the alternative explanations that have been advanced and to compare their respective influences to that of advertising.

Consider a simple model of the determination of individual body weight.¹¹ Suppose a person has an “ideal” body weight determined by medical or aesthetic concerns — utility decreases as he moves farther away from that ideal weight, whether from above or below. However, he also gains utility from consuming good tasting food. Exercise may reduce utility for him. Exercise can also affect income — if he has an active job, then exercising more hours increases his income. Conversely, with an inactive job, exercising more may require working fewer hours and thus reduce his income. In this simple model, when food prices are relatively

¹¹The determination of individual body weight is a highly complex process involving physiological and psychological factors as well as responses to changes in the costs of food and physical activity. This simple model briefly summarized here incorporates the basic calories-in-calories-out physiological process. Other models consider psychological factors as well — one model discussed below incorporates habit formation and the difficulty of changing eating and exercise habits; another model, discussed in a subsequent footnote, describes the determination of weight when individuals have self-control problems. Other models include the possibility that some foods are addictive and that some food preferences are a function of evolutionary processes. Of course, there is a great deal of variation among individuals with respect to their disposition to weight gain — in addition to genetic differences, people differ in their level of self-control, for example. The models discussed here are useful as a guide to understanding the overall effects of policy-relevant factors on overweight and obesity.

low and the cost of exercise is relatively high, the person will optimally choose a weight higher than the “ideal” weight. That is, he cares about his weight but he also wants to enjoy good food and (non-exercise) leisure time. The chosen weight reflects the trade-off between the costs (exceeding the ideal weight) and benefits (more food and leisure) of attaining that weight.¹²

¹²See Tomas J. Philipson & Richard A. Posner, *The Long-Run Growth in Obesity as a Function of Technological Change*, National Bureau of Economic Research Working Paper W7423 (November 1999), available at: <http://ssrn.com/abstract=227586>.

A model of weight choice can be made somewhat more realistic by positing a cost to adjusting habitual eating and exercise habits. In such a model, for example, excess weight could result as metabolism slows with age.¹³ A person's chosen weight when there are adjustment costs will be greater than without; however, it is still an optimal choice that considers the relevant costs (including adjustment costs) and benefits. Consumers might also exhibit willpower problems or time-inconsistent preferences that interfere with their desire to obtain their optimal weight.¹⁴

Before turning to an examination of the specific hypothesis that advertising is a major

¹³For a model which includes adjustment costs, see Heather L. Bednarek, Thomas D. Jeitschko, and Rowena A. Pecchenino, *Gluttony and Sloth vs. Bliss*, Working Paper (July 2003), available at: <http://ssrn.com/abstract=426700>.

¹⁴For example, a person with time inconsistent preferences might express a preference for \$12 next Monday over \$10 next Sunday. But then when Sunday arrives he will choose the \$10 that day over the \$12 the following day. These models describe people who always want to diet, or quit smoking, or start saving for retirement tomorrow. Thus, time inconsistent preferences — or self-control problems — also lead to higher weight than would be chosen in the basic model. Unlike the basic and adjustment cost models, the model incorporating self-control issues can predict choices that are not dynamically optimal. See George Akerlof, *Procrastination and Obedience*, AM. ECON. REV. (May 1991) and Ted O'Donoghue and Matthew Rabin, *Doing It Now or Later*, AM. ECON. REV. (March 1999).

contributor to rising obesity, it is useful first to examine alternative explanations that have been put forth.

A. Long-run technological changes: Lower food costs and lower activity levels

Philipson and Posner argue that long-run technological changes have led to a decline in the relative cost of food and an increase in the relative cost of exercise.¹⁵ Over the past 100 years or so, jobs and home production have become much more sedentary while food has become more plentiful and relatively less expensive. The basic economic model predicts that people's weight would increase as a result. Maintaining an ideal weight requires bearing the cost of passing up pleasurable food as well as undertaking the cost, in effort if not in monetary terms, of exercise.

¹⁵Tomas J. Philipson & Richard A. Posner, *The Long-Run Growth in Obesity as a Function of Technological Change*, National Bureau of Economic Research Working Paper W7423 (November 1999), available at: <http://ssrn.com/abstract=227586>.

Data on long-term trends in activity levels and food prices provide support for this hypothesis. For example, the percentage of the labor force in agricultural jobs (typically strenuous work) was 72 percent in 1810, 67 percent in 1840, 56 percent in 1860, and only 12 percent in 1950.¹⁶ The percentage of the labor force in highly active jobs, including agricultural workers and laborers, fell from 68 to 49 percent between 1910 and 1970 (0.32 percentage points per year) and from 45 to 42 percent between 1980 and 1990 (0.30 percentage points per year).¹⁷ An analysis of the National Health Interview Survey for the period 1976 through 1994 and the National Longitudinal Survey of Youth for the period from 1982 through 1998 found that Body Mass Index (“BMI”)¹⁸ is negatively related to an index of job strenuousness, providing further support for this hypothesis.¹⁹ Food price movements are also consistent with this hypothesis: between 1950 and 2000, the relative price of food fell, on average, 0.2 percentage points per year. The decline was fairly steady, with the exception of a spike associated with the oil shocks of the early 1970s which put relative prices well above those of the early 1950s for about five years.²⁰

The evidence on changes in food prices and activity levels are largely consistent with this

¹⁶Dora L. Costa & Richard H. Steckel, *Long-Term Trends in Health, Welfare, and Economic Growth in the United States*, National Bureau of Economic Research Working Paper H0076 (November 1995), available at: <http://ssrn.com/abstract=190415>.

¹⁷David M. Cutler, Edward L. Glaeser & Jesse M. Shapiro, *Why Have Americans Become More Obese?* 17 J. ECON. PERSP. No. 3 (Summer 2003), page 103.

¹⁸BMI is weight in kilograms divided by height in meters squared.

¹⁹Darius Lakdawalla & Tomas Philipson, *The Growth of Obesity and Technological Change: A Theoretical and Empirical Examination*, National Bureau of Economic Research Working Paper W8946 (May 2002), available at: <http://ssrn.com/abstract=312659>.

²⁰*Id.* at 2, fig. 3.

hypothesis. However, while annual increases in BMI were relatively steady through the end of the 1970s, the increases have been much higher since then. Apparently other, complementary, explanations are required for the more recent surge in obesity rates.

B. Recent technological change: Lower food preparation costs

Since around 1980, average BMI and obesity rates have increased many times faster than in the two previous decades. Trends in job-related activity and food prices, however, do not appear sufficient to explain this surge in overweight. The decline in active jobs since 1980 has occurred at approximately the same rate as in previous decades. Since 1980 food prices have declined at about the same rate as between 1950 and the price spike of the early 1970s. Cutler *et al.* hypothesize that the recent rapid increase in obesity is a result of technological advances that have led to a dramatic decrease in the time cost of food; thus, not only has food become less expensive over time, it has also become much easier to prepare and eat.²¹

²¹David M. Cutler, Edward L. Glaeser & Jesse M. Shapiro, *Why Have Americans Become More Obese?* 17 J. ECON. PERSP. No. 3 (Summer 2003).

Recent technological advances in food preparation and distribution, beginning especially in the 1970s, have made possible a wide range of prepared and convenience foods that require little or no preparation time in the home. Adoption of the microwave has additionally reduced the time required to prepare meals. The decrease in the total cost of food would lead to increased consumption, other things equal, and thus could contribute to the prevalence of overweight and obesity. Moreover, this price effect is compounded by the fact that prepared and convenience foods tend to be more calorie dense than other foods.²²

Time use studies provide some evidence in support of this hypothesis. Between 1965 and 1995, married women's time spent on meal preparation and cleanup fell by about one-half. Married women who were not employed out of the home spent 2 hours and 17 minutes per day on meals in 1965 compared to 1 hour and 9 minutes in 1995. Those who worked outside the home spent 1 hour and 25 minutes on meals in 1965 compared to 41 minutes in 1995. (Married men spent more time on meal preparation and cleanup in 1995 than in 1965 but the increases were quite small compared to the decreases for women. Single men's time on meal preparation and cleanup rose from 14 to 18 minutes per day, married men with non-working spouses increased their time from 7 to 9 minutes per day, and married men with working spouses

²²Foods that require significant preparation time, like french fries and snack cakes, benefit most from the central preparation technologies. That is, the time saving is greater for those foods. (Calorie density is defined as calories per gram.)

increased their time from 8 to 12 minutes per day.)²³

²³David M. Cutler, Edward L. Glaeser & Jesse M. Shapiro, *Why Have Americans Become More Obese?* 17 J. ECON. PERSP. No. 3 at Table 4.



Some of the time savings appear to have come courtesy of microwaves. The household incidence of microwaves has grown from 8 percent in 1978, to 83 percent in 1999,²⁴ to nearly 90 percent in 2003.²⁵ However, Cutler *et al.* find evidence that central preparation of food (such as processed pre-packaged food) is a significant part of the story. Data on the distribution of food payments suggests that part of the time savings came about through more consumption of highly processed foods. The final price of highly processed foods reflects the costs of the many contributors to its production; thus, the farmer's portion is smaller than is the case for less processed foods such as eggs. Therefore, a drop in the percentage of the price of food that went to farmers from 44 percent in 1972 to 23 percent in 1997 is evidence of increased consumption of highly processed foods. Furthermore, Cutler *et al.* find that an increasing portion of American's calories are coming from branded foods, which tend to be more processed and prepared foods.²⁶

²⁴*Id.* at 106.

²⁵Mark D. Jekanowski, *Causes and Consequences of Fast Food Sales Growth*, FOOD REVIEW, January-April 1999, at 12.

²⁶Use of potatoes over time provides an interesting example. Between 1970 and 1995 annual per capita use of fresh potatoes declined from nearly 62 pounds to just under 50 pounds. During the same time period, consumption of frozen potatoes (mostly french fries) increased from around 28 pounds to over 58 pounds per capita. David M. Cutler, Edward L. Glaeser & Jesse M. Shapiro, *Why Have Americans Become More Obese?* 17 J. ECON. PERSP. No. 3.

As mentioned above, the rate of decline in the percentage of the workforce in highly active jobs was about the same in the 1980s as in earlier parts of the century; therefore, changes in work-related activity levels are unlikely contributors to the recent accelerated growth of overweight and obesity.²⁷ However, other factors may have affected activity levels. The increase in women's labor force participation has decreased the amount of leisure time for families, and thus decreased the amount of time available for exercising and participating in sports.²⁸ In addition, passive leisure entertainment opportunities — increasing numbers of TV channels, movies on videotape and DVD, video games, and web sites — have expanded over the past twenty years or so. These leisure entertainment options have increased the opportunity cost of exercise for many people.²⁹

C. Fast food

Although the decreased time cost of preparing food at home is a likely factor in the surge in obesity over the past 25 years or so, it is probably not the full explanation. During the time that preparing food at home became much less time intensive, people were also increasingly eating out at both fast food and full service restaurants. Many have hypothesized that the

²⁷David M. Cutler, Edward L. Glaeser & Jesse M. Shapiro, *Why Have Americans Become More Obese?* 17 J. ECON. PERSP. No. 3, (Summer 2003).

²⁸The average two earner family spent approximately one and a half days per week more at work in 1990 than in 1970. Barry Bluestone & Stephen Ross, *Overworked and Underemployed: Unraveling an Economic Enigma*, 8 AM. PROSPECT, No. 31 (March-April 1997) (cited in Shin-Yi Chou, Michael Grossman, and Henry Saffer, *An Economic Analysis of Adult Obesity: Results From the Behavioral Risk Factor Surveillance System*, 23 J. HEALTH ECON. (2004)). Also, labor force participation of married women went from 41% in 1970 to 62% in 1998.

²⁹Of course, earlier decades saw the expansion of television ownership without an associated rise in obesity.

ubiquity of fast food restaurants and their calorie dense offerings are a significant contributor to the obesity crisis.

There is indeed evidence that eating at fast food restaurants has been increasing. The per capita number of fast food outlets doubled between 1972 and 1997.³⁰ From 1982 through 1997 spending at fast food restaurants grew at an annual rate of 6.8 percent, while fast food prices only rose at a rate of 2 percent.³¹ Data from the Continuing Survey of Food Intake show that a significant portion of the increased intake of calories between the 1977-78 and 1994-96 surveys was consumed at fast food restaurants (53 percent for men and 45 percent for women).³²

Chou, Grossman and Saffer examine micro-level data from the 1984-1999 Behavioral Risk Factor Surveillance System, along with data on the per capita number of fast-food and full-service restaurants, the prices of food at restaurants and at home, and data related to smoking and women's labor force participation.³³ The per capita number of restaurants can be interpreted as a proxy for the time costs of obtaining food at fast food and other restaurants. They find that the per capita number of restaurants is a contributor to recent weight increases along with real prices of fast food, restaurant food, and food at home. Thus, their research suggests that the recent

³⁰The per capita number of full service restaurants rose by 35 percent during the same period.

³¹Mark D. Jekanowski, *Causes and Consequences of Fast Food Sales Growth*, FOOD REVIEW, January-April 1999.

³²These figures were computed from Table 4 of David Cutler, Edward Glaeser & Jesse Shapiro, *Why Have Americans Become more Obese?*, National Bureau of Economic Research Working Papers No. 9446 (January 2003). (This table is not in the published version.)

³³Shin-Yi Chou, Michael Grossman & Henry Saffer, *An Economic Analysis of Adult Obesity: Results From the Behavioral Risk Factor Surveillance System*, 23 J. HEALTH ECON., No. 3, at 565-587 (2004).

increase in obesity and overweight results from declining dollar and time costs of food, both at home and at restaurants.

Many arguments for fast food as a contributor to obesity point to its higher calorie density. Indeed, in 1995 fast food provided 39.3 percent of calories from fat while home prepared food provided 31.5 percent calories from fat. However, in 1977-78, both fast food and home food provided slightly over 41 percent of calories from fat. Also, food at full-service restaurants provided a higher percentage of calories from fat in both periods — 46.2 percent in 1977-78 and 40.1 percent in 1995. Despite the decreases in caloric density in all dining categories, obesity rates increased markedly during this period.³⁴

Note that the fast food explanation for obesity may be linked to the technological changes that make centralized food preparation efficient and lower the time cost of food at home. For example, centralized preparation is one way to ensure that the food will taste the same at each outlet of a particular chain. Chains, therefore, can base a reputation on dependable quality. The technological advances have also lowered the time costs for restaurants in food preparation and, in so doing, decreased restaurants' labor costs, which has helped keep their prices low. However, Chou, *et al.* argue that the growth in the per capita number of both fast food and full service restaurants may also be due to the increased demand for fast and convenient food driven by an increase in women's labor force participation.

³⁴Biing-Hwan Lin, Elizabeth Frazao, & Joanne Guthrie, *Away-From-Home Foods Increasingly Important to Quality of American Diet*, Economic Research Service, U.S. Department of Agriculture, Agriculture Information Bulletin No. 749 (1999).

D. Women's Labor Force Participation

As mentioned above, several researchers have noted that the increased labor force participation of women is a demographic change that has coincided with the recent rise in obesity rates.³⁵ Labor force participation of married women rose from 41 percent in 1970 to 62 percent in 1998.³⁶ Single mothers also increased their labor market participation — in 1967 about 74 percent had worked in the previous year, while in 1996, 82 percent had worked in the previous year. During the same time, the fraction of single mothers increased from 4 percent to 13 percent.³⁷ Also, between 1970 and 1990, the typical two-earner family increased the amount

³⁵See Shin-Yi Chou, Michael Grossman & Henry Saffer, *An Economic Analysis of Adult Obesity: Results From the Behavioral Risk Factor Surveillance System*, 23 J. HEALTH ECON., No. 3, at 565-587 (2004).

³⁶*Id.*

³⁷Bruce D. Meyer & Dan T. Rosenbaum, *Making Single Mothers Work: Recent Tax and Welfare Policy and Its Effects* 53 NAT'L TAX J. 1027 (2001).

of time spent on the job by about one and a half days per week.³⁸ These researchers posit that the decrease in the amount of home time and the increase in the value of home time (*i.e.* opportunity cost of home time in lost wages) could lead to an increase in demand for fast food, restaurant food, and prepared food that may be higher in calories than “made from scratch” meals.³⁹ The substantial increase of time spent on the job by two-earner families could also lead to less supervision of children’s diets and activity levels.

³⁸Barry Bluestone & Stephen Ross, *Overworked and Underemployed: Unraveling an Economic Enigma*, 8 AM. PROSPECT, No. 31 (March-April 1997).

³⁹Of course, even if this theory were to be proven correct, this does not mean that a proper response to an unintended consequence of women’s increased workforce participation is to encourage them to quit work. Instead, it is more likely that responses would be directed toward ameliorating the consequences, such as an increased availability of lower-calorie convenience foods.

On the other hand, Cutler *et al.* note that the weight increases between the 1977-78 and 1995 surveys were approximately the same for married men with working and non-working wives, as well as for married women regardless of the woman's working status. This suggests that increased labor force participation is not a causal factor in the obesity epidemic.⁴⁰ However, this snapshot view may not tell the whole story. For instance, many women move in and out of the labor force, so that a woman counted as working outside the home might have spent the previous five or six years at home, and *visa versa*. Also, obesity rates differ by socio-economic status and the composition of working and non-working groups of women may differ between the two surveys. For example, it is well known that obesity in women is inversely related to education, and the proportion of working women with advanced degrees may be higher in 1995 than in 1977 or 1978. Whether women's labor force participation is a direct contributor to the growth in obesity thus remains an open question.

As discussed above, Chou, *et al.* find that the number of restaurants per capita is a large contributor to the increase in BMI and obesity rates. They also argue that the growth in the per capita number of restaurants – especially fast food restaurants – is, at least in part, a response to increased demand stemming from greater labor force participation of women. We are not aware of any evidence that would suggest how much of the growth in the number of restaurants is due to increased demand versus technology changes. Thus, the extent to which women's increased involvement in the workforce is contributing to weight gains through increases in the per capita

⁴⁰David M. Cutler, Edward L. Glaeser and Jesse M. Shapiro, *Why Have Americans Become More Obese?* 17 J. ECON. PERSP. NO. 3, (Summer 2003).

number of restaurants remains an open question.

Anderson, Butcher, and Levine look at the effect that mothers' work may have on their children's weight.⁴¹ They find that there is a causal effect for families in the top quartile of family income — a mother working ten more hours per week leads to a 3.5 to 3.8 percent increase in the likelihood that her child is obese. Children in the upper quartile whose mothers never worked have an obesity rate of 3.2 while those whose mothers worked more than 35 hours a week from their birth have an obesity rate of 10.6 — the same as the average rate for all children. This finding of an effect only for high income families is puzzling. The authors speculate that their findings may be due to lower income mothers being more time and resource constrained even when they are not working outside the home.⁴²

E. Other Hypotheses

Other explanations for the increase in obesity include larger portion sizes, more snacking, and decreased smoking.

Young and Nestle find that portion sizes in the late 1990s almost always greatly exceeded those offered 15 to 25 years earlier. They also examine introduction dates of larger portion sizes and find that the trend began in the 1970s but accelerated in the 1980s and 1990s.⁴³ Rolls finds that people eat more when they are offered larger portions.⁴⁴ For example, when adults were

⁴¹Patricia M. Anderson, Kristin F. Butcher, and Phillip B. Levine, *Economic Perspectives on Childhood Obesity* 27 J. ECON. PERSP., No.3, at 30-48 (3rd Quarter 2003).

⁴²*Id.*

⁴³Lisa Young & Marion Nestle, *The Contribution of Expanding Portion Sizes to the US Obesity Epidemic*, 92 AM. J. PUB. HEALTH, No 2 (Feb. 2002).

⁴⁴Barbara Rolls, Erin L. Morris & Liane S. Roe, *Portion Size of Food Affects Energy Intake in*

offered macaroni and cheese in portions ranging from 2.5 to 5 cups, they ate 30 percent more from the 5 cup offering than the 2.5 cup one. Furthermore, the study participants did not report feeling fuller after eating the larger amounts.

Normal-weight and Overweight Men and Women, AM. J. CLINICAL NUTRITION, Dec. 2002.



People are also snacking more. Cutler, *et al.* show that the increase in calorie intake between 1977-78 and 1994-96 can be mostly explained by the increase in snacking. Snacking accounted for 90 percent of the increase for men and 112 percent of the increase for women.⁴⁵ (Calories obtained from dinner declined markedly.) The increase in snacking can be explained as a response to the lower time cost of food. Whereas it used to take a great deal of time and energy to bake cookies or brownies, as a result of innovations in food preparation and storage technology, reasonably tasty and inexpensive snacks are readily available and can be stored for some time in the home and are available at a moment's notice.

Chou, *et al.* point out that the real price of cigarettes rose by 164 percent between 1980 and 2001. They find that because cigarettes act as an appetite suppressant, this increase in price could be a contributing factor to the increase in obesity rates. This successful public health effort to reduce the health injury caused by smoking may have had the unintended effect of contributing to the increase in obesity rates.⁴⁶

Economists have identified a variety of potential explanations for rising obesity rates. For most of these explanations, the central message is that the price of food has fallen, in terms of both money and time, and that the cost of activity has risen, in terms of money, time, and opportunity cost. Economists' efforts to evaluate empirical support for these explanations are just beginning. The available evidence regarding most of the explanations is supportive, though

⁴⁵David M. Cutler, Edward L. Glaeser & Jesse M. Shapiro, *Why Have Americans Become More Obese?* 17 J. Econ. Persp., No. 3, at Table 2 (Summer 2003). As discussed earlier, around half the increase in calories comes from fast food. The apparent "over explaining" is because some of the snacks were from fast food restaurants.

⁴⁶Even with these effects, tobacco use remains the number one cause of preventable premature death in the United States and the further reduction in smoking a primary public health goal.

the evidence regarding women's labor force participation is mixed. Notably, the explanations are not inconsistent with one another and all may be contributing factors to the rise in obesity. We now turn to an examination of food advertising as a potential contributor — particularly its possible effect on children's obesity.

II. Advertising and the Children's Obesity Epidemic

This Part of the article turns to a specific analysis of the hypothesis that food advertising is a substantial contributor to the obesity problem and the corollary belief that a ban on food advertising to children would substantially reduce obesity among children. The proffered link is often simply assumed with little effort to specify the theoretical elements of the model or to conduct well-designed tests of the model.⁴⁷ On closer examination, the hypothesis that advertising is a substantial contributor to the obesity epidemic is not supported by publicly available data. Note that while the effect of the entire scope of food marketing is the proper question to investigate, we will focus on television food advertising simply because there is little

⁴⁷*See Review of Research on the Effects of Food Promotion to Children: Final Report*, (prepared for the Food Standards Agency), Gerald Hastings, Martine Stead, Laura McDermott, Alasdair Forsyth, Anne Marie MacKintosh, Mike Rayner, Christine Godfrey, Martin Caraher and Kathryn Angus, The University of Strathclyde, 22 September, 2003, for a review of the research that has found a link between television watching and obesity as well as research on the response of children to marketing. The one paper they discuss that analyzes children's response to TV food ads in their homes and controls for potentially confounding factors is discussed below in II.B.5.

or no information regarding the prevalence of other forms of marketing or how it may have changed over the past decades.⁴⁸

A. Advertising and Obesity: The Theory

⁴⁸As we discuss below, there is a paucity of data on televised food advertising. There is, however, enough to obtain a preliminary assessment of its prevalence over time.

Many commentators have called for restrictions on food advertising justified by an assumption that such restrictions will help to fight childhood obesity.⁴⁹ To date, efforts to restrict commercial speech have been focused on children, rather than adults, although in practice regulatory efforts will have obvious spillovers. Moreover, one justification for fighting childhood obesity is that being overweight or obese as a child substantially increases the likelihood that one will be obese as an adult.⁵⁰ Nonetheless, there has been little theoretical or empirical analysis of the central questions related to the “advertising causes obesity” thesis. This Section of the article examines the hypothesis that advertising causes obesity.

Stated simply, the theory is premised on the assumption that advertising of food products alters consumers’ preferences for foods so that they consume more of the advertised foods than they would have absent the advertising. That is, for example, ads for fast food cause increased overall consumption of fast food in addition to causing some people to switch from one fast food brand to another.⁵¹ In principle, this effect of advertising applies to both adults and children, with the primary distinction being that adults are better able to perceive and defend themselves

⁴⁹See Center for Science in the Public Interest, *Pestering Parents: How Food Companies Market Obesity to Children*, Nov. 2003.; Brian L. Wilcox *et al.*, *Report of the APA Task Force on Advertising and Children*, American Psychological Association, Feb. 20, 2004, at _.

⁵⁰See *Childhood Obesity: What the Research Tells Us*, The Center for Health and Health Care in Schools, The George Washington University, available at <http://www.healthinschools.org/sh/obesityfs.asp>; see also Kaiser Family Foundation, *Kaiser Family Foundation Releases New Report on Role of Media in Childhood Obesity*, News Release (Feb. 24, 2004) (citing Dennis M. Styne, *Childhood and Adolescent Obesity: Prevalence and Significance*, 48 PEDIATRIC CLINICS OF NORTH AMERICA 823 (2001)).

⁵¹These two effects of advertising and their relative importance are discussed in II.B.5 below; economists find strong evidence for the brand switching effect but mixed evidence for the overall demand increasing effect.

against advertising. As applied to the issue of childhood obesity, it is observed that there is a substantial amount of advertising for relatively unhealthy foods, such as sugared cereal, candy, salty snacks, and the like. In turn, this advertising is converted into increased demand for those products.

One complication for this theory is the fact that small children cannot drive themselves to the supermarket.⁵² As a result, a further causal mechanism is needed to convert this demand into consumption; children request or “nag” their parents to purchase “junk food.” Advertising thus spurs demand by children, which puts pressure on parents to have to reject their demands. Over time, it is argued, parents eventually give in to some of these demands, causing increased consumption of “junk food.” Press reports quote one commentator as observing that, by relying on parents to say no, advertisers “overlook the psychological difficulties parents face to constantly be responding negatively to their child’s requests. Parents give in too much and that’s why you have childhood obesity. Over half the ads are for junk food, sugared cereal, sodas, candies, potato chips.”⁵³ Fundamentally, then, the “advertising causes obesity” model generates a clear testable hypothesis: If advertising is a substantial cause of obesity, then the dramatic rise in obesity in recent years should be mirrored by a similar dramatic rise in children’s exposure to food advertising, along with an increase in calories that come from those advertised foods.

⁵²Children do have access to vending machines at school. Although rising slowly over time, consumption from vending machines remains a very small percentage of the sweets and snacks consumed by American children. See Simone A. French, Biing-Hwan Lin, and Joanne F. Guthrie, *National Trends in Soft Drink Consumption Among Children and Adolescents Age 6 to 17 years: Prevalence, Amounts, and Sources, 1977/1978 to 1994/1998*, 103 J. AM. DIETETIC ASSOC. 1326, 1329 (2003).

⁵³ *Information or Manipulation? Regulators Urged to Further Limit Ads Aimed at Children*, WASHINGTON POST, Feb. 24, 2004, at E1.

There are a number of criteria that can be examined to assess the validity of the “advertising causes obesity” hypothesis:

1. Children and youth are watching more TV, so they are being exposed to more food ads.
2. Children and youth are watching the same amount of TV, but there are more minutes per hour dedicated to ads than previously.
3. Children and youth are watching the same amount of TV, and the amount of advertising per hour is the same, but the *composition* of ads has changed such that kids are seeing more food ads and fewer ads for other products directed at children, such as toys and videos.
4. The amount of advertising is the same, but the effectiveness has increased, such that children have more control over what they are fed. In other words, parents “give in” to children’s food demands more often than they used to.
5. Finally, if there is a correlation between changes in TV food advertising exposure and obesity, it is important to check whether the increased obesity is best explained by the advertising link or other alternative hypotheses.

The remainder of this part of the paper explores the “advertising causes obesity” hypothesis by examining the available data related to each of these alternative tests.

B. Advertising and Obesity: The Evidence

1. Are Children Watching More Television?

It is a common assumption that children are watching more television today than in the past. If this assumption were true, then *ceteris paribus*, children might be exposed to a greater

amount of advertising of all kinds, including food ads, than in the past. If so, then an increase in exposure to food ads might be correlated with an increase in children's obesity. So are children watching more television?

No, they are not. No matter how one chooses to measure, there has been a gradual downward trend in television viewing by children over the past two decades. The average amount of time children spend watching television fell from more than 4 hours per day in the late 1970s to about 2.75 hours per day in 1999.⁵⁴ The percentage of children who watched four or more hours of television per day on weekdays declined between 1991-2001; at the same time, the percentage of youth watching only one hour or less of television per day during the week increased.⁵⁵ These downward trends in television viewing were consistent across Eighth Grade, Tenth Grade, and Twelfth Grade children surveyed. Similarly, a survey of the Department of Health and Human Services also noted a general downward trend from 1982 to 1994 in the number of children watching six or more hours of television per day, especially among younger children, who, some argue, are the most vulnerable to the influence of advertising.⁵⁶ Therefore,

⁵⁴ Children 2 to 18. See Kaiser Family Foundation, *Kids and Media @ the New Millenium* (Nov. 1999); see also Lauren R. Rublin, *Tuning Out: Who Wins, Who Loses as Kids Spend More Time on PCs and Less Watching TV*, 1999 Barron's 37 (Nov. 8, 1999), available in 1999 WL-BARRONS 29061696 (summarizing finding by Nielsen Media Research that "kids aged 2 to 11 watched an average two hours and 57 minutes of television per 24-hour day in the broadcast year that ended in August, down from three hours and 25 minutes a decade ago. Viewership among youth aged 12 to 17 now stands at just under three hours, compared with a peak of 3:15 in the 1990-91 broadcast season").

⁵⁵ "Watching Television," Child Trends Data Bank, available at www.childrendsdatbank.org.

⁵⁶ "TV Viewing Habits," *Trends, 1997: SD 1.5*, available at <http://aspe.hhs.gov/hsp/97trends/sd1-5.htm>. For nine-year-old youth, the percentage watching six hours or more declined from 26% to 19%, and for thirteen-year-olds there was a decline from 16% to 13%. There was a slight upward trend for seventeen-year-olds from 5% to 8%.

it appears that there has been a general downward trend in television viewing among children. At the very least, there has been no discernible increase in television viewing and certainly no increase comparable to the dramatic increase that has been observed in childhood obesity rates.

2. Exposure to Advertising

Even if children are watching the same or lesser amounts of television, it might be that the amount of advertising on television has increased over time, and if so that children are exposed to greater amounts of advertising per hour of television watching than they were previously. If this is true, it could possibly provide some association between advertising and the upward trend in obesity.

Again, the available evidence lends little support to this hypothesis. First, regarding traditional broadcast television, we are not aware of evidence showing that minutes of advertising per hour have increased over time. There is, however, some evidence that ads are becoming shorter so that the number of ads per hour may have increased. Second, the advent of cable television has spawned a proliferation of alternative channels designed for children's viewing. In fact, children now watch substantially more cable television than all "free" children's television (network, network affiliates, syndication, and PBS) combined.⁵⁷ Premium channels, such as HBO Family and the Disney channel, have no regular advertising except for their own products — though Disney does have "sponsorship" ads from McDonald's. Standard children's cable channels, such as Nickleodeon, have less outside product advertising than does broadcast television.⁵⁸ Moreover, food advertisements comprise a substantially greater

⁵⁷ See Rublin, *supra* note __.

⁵⁸ According to one study, broadcast television has 10:05 minutes of product advertising per

percentage of the advertisements on children's shows on broadcast television than on cable alternatives.⁵⁹ Therefore, as children have shifted their viewing habits away from broadcast television to cable television, they are seeing fewer food ads per hour of viewing, which reinforces the downward effect on ad exposure from reduced television viewing among children.

It is also well recognized that several technological innovations in the past twenty years have tended to reduce the exposure of consumers to advertising. Casual observation and anecdotal evidence suggest that these trends have affected children in many of the same ways as adults. Although remote control for television was not unheard of twenty years ago, it seems obvious that the remote control is much more prevalent today than it was then. A remote control, of course, makes it easier to "channel surf" during commercials, thereby enabling the viewer to ignore commercials. In addition, media reports suggest that children today tend to engage in an unprecedented degree of media multitasking, such as simultaneously watching television and working on the computer or playing hand-held video games, which would also tend to reduce the attention that children pay to commercials.⁶⁰ Again, these factors tend to

hour and cable television (Nickelodeon and USA Network in the study) has only 6:48 minutes per hour. Dale Kunkel & Walter Ganz, *Children's Television Advertising in the Multichannel Environment*, *Journal of Communication* 134, 145 (1992). The researchers found that cable stations tend to dedicate substantially more non-program time to promotion of their own shows than do broadcast networks.

⁵⁹ Advertisements for food products comprised 72% of the ad time on broadcast television and only 36% of the ad time on cable television. Kunkel & Ganz, *supra* note, at 142. Commercials for toys comprise a substantially larger percentage of the ads on cable television than food products.

⁶⁰ See Peers, *supra* note __, at B1. While this multitasking obviously affects the attention that youth pay to television, one suspects that it is more likely to lead to tuning out commercials rather than programming. According to a media summary of one study, those watching traditional prime-time television already ignore advertising 43% of the time by talking or taking

suggest that children are seeing less, rather than more, advertising on television than in the past.

a bathroom break. *See* Angwin, *supra* note _ (citing study by CNW Marketing Research, Inc.).



bepress Legal Repository

An analysis of Nielsen data regarding advertising expenditures on food advertisements and exposure to food advertising over the last ten years fails to find any substantial increase.⁶¹ Inflation-adjusted expenditures for food advertising remained constant from 1993-2003, and advertising exposure for children under the age of twelve has actually declined over that period, owing to the factors that have been described.

⁶¹ See <http://www.cato.org/events/jaffe-06-07-04.ppt> (Presentation of Dan Jaffe presenting Nielsen Media Research, Inc., data).

Several studies of TV watching and obesity have nonetheless argued that there has been an increase in children's advertising exposure, by pointing to alleged dramatic increases in the number of TV ads through the years. For example, Kunkel and McIlrath report that the number of ads seen annually by U.S. children was 20,000 in the 1970s, 30,000 in the 1980s, and 40,000 in the 1990s, and that in 1999 the average TV viewer (including adults) watched approximately 60,000 ads per year.^{62, 63} The estimates appear to be drawn from a content analysis of programming directed to children. For example, Kunkel and Gantz (who provide the 40,000 estimate) sample programs from the five hours of television per week that were believed most likely to include children's programming — 6:30-9:30 am and 3:30-5:00 pm on weekdays and 7:00 am to noon on weekends. The method used to obtain the yearly estimated exposure from the content analysis is not clear from the published paper.⁶⁴ However, as discussed below, the

⁶²Dale Kunkel and Mary McIlrath, *Message Content in Advertising to Children*, Chapter 14, *THE FACES OF TELEVISUAL MEDIA: TEACHING, VIOLENCE, SELLING TO CHILDREN*, (Edward L. Palmer and Brian M. Young, eds., 2003). The figure of 40,000 ads seen by children annually has also been mentioned in several studies (such as the APA and Kaiser studies) and in several news accounts regarding obesity, *see, e.g.*, Darn Fonda, *Kill the Messenger?* TIME 87 (June 7, 2004).

⁶³The primary sources are: R. Adler, B. Friedlander, G. Lesser, L. Meringoff, T. Robertson, J. Rossiter, and S. Ward, *Research on the Effects of Television Advertising to Children: A Review of the Literature and Recommendations for Future Research*, Washington, DC, U.S. Government Printing Office, 1977; J. Condry, P. Bence, and C. Scheibe, *Nonprogram Content of Children's Television*, JOURNAL OF BROADCASTING AND ELECTRONIC MEDIA, 32, 1988; Dale Kunkel and Walter Gantz, *Children's Television Advertising in the Multichannel Environment*, JOURNAL OF COMMUNICATION 42(3) Summer 1992; and, G. COMSTOCK AND E. SCHARRER, TELEVISION: WHAT'S ON, WHO'S WATCHING, AND WHAT IT MEANS (1999)

⁶⁴Others have pointed to increased spending on ads over the past several decades as evidence of increased exposure. This does not necessarily mean that people are seeing more ads now — the number of TV channels has increased dramatically since the 1970s. Increased spending and total number of ads may just indicate that it is more costly now to get the same number of ads actually viewed by members of a fragmented audience.

estimate appears to be inconsistent with other data on children's TV watching and hourly ad incidence.

Obtaining a reliable estimate of TV advertising exposure would require detailed data on TV program ratings and on the ads aired on each program. As Abel discovered in his 1978 detailed analysis of ratings and ad exposure, the shows with the largest percentage of children in the audience (like Captain Kangaroo) are not the shows with the largest number of children in the audience (like Happy Days).⁶⁵ Moreover, the types of ads in shows with the largest percentage of children were quite different from those with the largest number of children; those with the largest percentage of children tended to have more food ads. Today, many children watch shows such as professional sports and Fear Factor, which are not primarily aimed at children. Assessing children's exposure to ads, and especially food ads, therefore requires information on advertising on all programs and the ratings of those programs.

⁶⁵"The Child Audience for Network Television Programming and Advertising," John D. Abel, Children's Advertising Rulemaking Comment, Submitted to the Federal Trade Commission, November 1978.

However, we can still obtain a rough idea of ad exposure from aggregated data in the public domain. According to the Henry J. Kaiser Family Foundation 1999 report, children between 2 and 18 years old watched an average of 2 hours and 46 minutes of TV per day.⁶⁶ According to their 2004 report, children between 4 and 6 years old watched an average of 1 hour and 10 minutes of TV per day.⁶⁷ If the 2 to 18 year olds were watching 40,000 ads per year, they must have watched 40 ads per hour. If the 4 to 6 year olds saw 40,000 ads per year, they were viewing approximately 94 ads per hour. This seems unlikely.⁶⁸

Several authors have measured the average number of ads per hour, or minutes of ads per hour, on shows directed at children.⁶⁹ Taras and Gage measured 21 ads per hour in 1993, Kotz and Story measured 19 ads per hour in 1992, and Kunkel and Gantz measured nine minutes of ads per hour in 1990. These measures suggest that exposure for the 2 to 18 year olds is more likely around 20,000 per year and under 10,000 for the 4 to 6 year olds — though the amount of advertising per hour may have increased since these measures were taken. More reliable data on food ad exposure is required before we can conclude that food advertising to children has increased since the late 1970s. What is clear is that some of the estimates that are often quoted appear to be implausible.

⁶⁶ Kaiser Family Foundation, *Kids and Media @ the New Millenium* (Nov. 1999).

⁶⁷ Kaiser Family Foundation, *Kaiser Family Foundation Releases New Report on Role of Media in Childhood Obesity*, News Release (Feb. 24, 2004).

⁶⁸ It may be that ads have simply gotten shorter over time, which it appears that they have. If so, then the number of ads may be a poor variable for measuring advertising exposure. It is unclear what the effect of having twice as many ads that are half as long has on the amount of advertising exposure.

⁶⁹ Note this may not correspond to the average number of ads that are on shows that the largest

3. Changes in Ad Composition

The available evidence we have examined thus far indicates that children are not watching more television and there is currently little evidence to indicate they are being exposed to more advertising per hour of television. An alternative explanation for an increase in children's exposure to food ads is that the proportion of food ads has grown while there has been an offsetting reduction in the proportion of ads for toys, videos, and other products. Even if children are exposed to the same amount of advertising overall, perhaps a greater percentage of advertising is for food products, so that children are actually being exposed to more food advertising over time.

number of children watch.

This explanation is not supported by the available evidence. Food does not appear to comprise a larger share of child-directed advertising than in the past. Historically, advertising on children's television has basically been for two categories – food and toys. The food advertising on children's programming has been dominated by foods with limited nutritional value – sugared cereal, candy, salty snacks, soft drinks, fast food, and the like. In the past five to ten years, these two traditional categories, food and toys, have been supplemented by a new category – video tapes and DVDs. It is often remarked that “junk food” advertising comprises as much as fifty percent or more of the advertising currently broadcast on children's television.⁷⁰ Content analysis of advertising in children's television programming over time shows that the percentage of ads for cereals, candy and snacks, and restaurants and fast foods declined from 64 percent in 1977 to 46 percent in 1992. There were declines in the percentages of all three food ad categories during this period, with the largest decline, eleven percentage points, in candies and snacks.⁷¹ These declines were offset primarily by increases in ads for toys.

Moreover, some recent evidence suggests that the increase in advertisements for children's DVDs and videos may also be further reducing the percentage of advertising remaining for food. One study estimates that advertisements for DVDs and videos comprise as much as thirteen percent of advertising on children's television and that much of the increase in

⁷⁰ See Dale Kunkel, *Children and Television Advertising*, in HANDBOOK OF CHILDREN AND THE MEDIA (Dorothy G. Singer & Jerome L. Singer eds., 2001).

⁷¹ Dale Kunkel and Mary McIlrath, *Message Content in Advertising to Children*, in THE FACES OF TELEVISUAL MEDIA: TEACHING, VIOLENCE, SELLING TO CHILDREN (Edward L. Palmer and Brian J. Young eds., 2003), page 291.

advertising of those products is coming at the expense of advertising for food products.⁷²

In sum, given the data available to us now, it appears that food advertising has not increased as a percentage of child-directed advertising.

4. “Giving In”

It thus appears that children’s exposure to food advertising has not risen during the same period that children’s obesity rates have risen. A different theory posits that advertising directed at children has become more “aggressive” or “intense,” and parents now “give in” to the demands of their children with greater frequency than in the past, meaning that the advertisers’ “bang for their buck” has increased.⁷³ Under this theory, for the same level of advertising exposure, there may be a greater impact on children’s food choices as children perhaps “nag” their parents more intensely or more effectively.

Some evidence regarding this hypothesis can be found in the food consumption habits of children and adults over time. If parents give in to their children’s food requests more readily than in the past, this would suggest that children have greater control over their food choices than previously. If so, then the diets of children and their parents should differ — the

⁷² Eliana Shiao Tseng, *Content Analysis of Children’s Television Advertising Today* (working paper), available in http://www.ciadvertising.org/student_account/fall_01/adv392/estseng/ContentAnalysis/ContentAnalysis.html.

⁷³ Wilcox, *supra* note __, at 11.

consumption of heavily advertised foods by children and youth would tend to rise over time relative to their parents.

On the contrary, the food composition patterns of children and adults have been quite similar over the past two decades.⁷⁴ For instance, consumption of fatty meats has fallen for both children and adults, while consumption of pizza, Mexican food, hamburgers and cheeseburgers, fruit drinks, soft drinks, and snacks have risen by almost exactly the same amount for both adults and youth. Interestingly, consumption of desserts has actually fallen for youth but has remained constant for adults.⁷⁵ This suggests either that parents are not giving in more or that children's requests are influencing their parents' diets as well.

⁷⁴ See Samara Joy Nielsen, Anna Maria Siega-Riz, and Barry M. Popkin, *Trends in Energy Intake in U.S. Between 1977 and 1996: Similar Shifts Seen Across Age Groups*, 10 OBESITY RESEARCH 370 (2002).

⁷⁵*Id.*

Other research finds that the frequency of fast food consumption by adolescents is correlated with the availability of unhealthy foods in the home and is inversely correlated with the mother's concern with her own healthy eating habits and with her child's healthy eating habits.⁷⁶ The key role parents play in their children's dietary habits is underscored by research indicating that parents who have greater knowledge about nutrition rear children who have healthier eating habits.⁷⁷

5. Effects of Advertising

Even if it were the case that children are exposed to more food advertising now than in the past, it is not clear why this would necessarily lead to an increase in the overall consumption of calories. Product advertising can increase the market demand for a particular category of products, such as soda, or it can increase demand for a particular *brand* of product, such as Coke or Pepsi. Most advertising will have both a market demand effect and a brand effect.

There is good empirical evidence that brand advertising tends to take share away from competing brands; the advertising is a form of competition.⁷⁸ Empirical evidence on the effect of brand advertising on overall demand, however, is quite mixed, with results varying across industries.⁷⁹ For example, a positive effect of brand advertising on overall demand has been

⁷⁶ S.A. French, M. Story, D. Neumark-Sztainer, J.A. Fulkerson, and P. Hannan, *Fast Food Restaurant Use Among Adolescents: Associations with Nutrient Intake, Food Choices and Behavioral and Psychosocial Variables*, 25 INT'L J. OBESITY 1823, 1830 (2001).

⁷⁷ Jayachandran N. Variyam. *Overweight Children: Is Parental Nutrition Knowledge a Factor?*, 24(2) FOOD REVIEW 18, 20-21 (2001).

⁷⁸ See Kyle Bagwell, *The Economic Analysis of Advertising* 27-31 (Unpublished manuscript, March 2003), at Sections 2.2 and 2.3.

⁷⁹ Bagwell, *supra* note, at Sections 3.1, 3.2, and 3.3. Also see Jean Jacques Lambin, *Advertising*,

found for the U.S. auto industry, while a negative effect has been found for the U.K. instant-coffee market.⁸⁰

Competition and Market Conduct in Oligopoly Over Time: An Econometric Investigation in Western European Countries, at Section 6.6 (1976)

⁸⁰J.E. Kwoka, Jr. *The Sales and Competitive Effects of Styling and Advertising Practices in the U.S. Auto Industry*, THE REVIEW OF ECONOMICS AND STATISTICS, November, 1993; K. Cowling, J. Cable, M. Kelly, and T. McGuinness, *Advertising and Economic Behavior*, London: The Macmillan Press, Ltd., 1975.



Advertising, particularly brand advertising, is a form of competition. It can also serve to increase overall demand, leave it unchanged, or even decrease it. Furthermore, some of the induced changes in demand may be beneficial to consumers. Advocates of ad bans, however, typically ignore these different effects of advertising.⁸¹ Many calls for restrictions on food advertising to children are based on the mere existence of the advertising. A recent editorial in *The Lancet*, for instance, observes, “Each year, the food industry spends enormous sums of money advertising high-calorie poor-quality foods to children.”⁸² Still, empirical evidence on the overall effects of food advertising is lacking. Do pizza ads induce a switch from a dinner of broiled chicken breasts and steamed broccoli? Or do they get people to try a different brand of pizza?

⁸¹See MARION NESTLE, FOOD POLITICS (2002); *Pestering Parents: How Food Companies Market Obesity to Children*, Center for Science in the Public Interest, Nov. 2003.

⁸²Ludwig & Gortmaker, *supra* note __, at 226.

We are aware of one study that has analyzed detailed information on ad exposure and dietary intake. Bolton's study takes a structural approach and controls for other potentially important contributors to dietary quality.⁸³ Bolton takes into account parental habits — both eating and TV watching habits — and finds no independent relationship between TV advertising exposure and children's calorie intake. The study did find a positive, but very small, effect of TV ads on snacking — an additional 12 hours of TV per week is associated with the consumption of one additional snack per week (which increased calorie intake by approximately 1.5 percent). The study also found a small negative impact on the quality of the diet. In contrast, measures of the parents' habits indicated they had a significant impact on their children's calorie intake and the nutritional quality of their diet. The study concluded that parents' eating behavior was substantially more important than advertising in influencing children's dietary habits.⁸⁴ Additional research along these lines would help ascertain the impact of food marketing on dietary habits.

6. Other Interpretations of the TV-Obesity Link

⁸³Ruth N. Bolton, *Modeling the Impact of Television Food Advertising on Children's Diets*, CURRENT ISSUES AND RESEARCH IN ADVERTISING 173, 187-91 (1983).

⁸⁴Bolton, *supra* note, at 187-91.

More plausible causal explanations for the observed correlation between television viewing and obesity exist. First, television viewing is a sedentary activity; thus, at least some of the time that children spend watching television might otherwise be spent on more active pursuits.⁸⁵ Recent research indicates, for instance, that notwithstanding the largely commercial-free nature of video games, they too are an important risk factor for obesity.⁸⁶ This suggests that it may be the sedentary nature of television and other similar activities (overall “screen time”), rather than advertising, that is the important factor. Second, there seems to be a tendency for both children and adults to snack while watching television, thereby increasing calorie intake.⁸⁷

⁸⁵ F.B. Hu, T.Y. Li, G.A. Colditz, W.C. Willett, & J.E. Manson, *Television Watching and Other Sedentary Behaviours in Relation to Risk of Obesity and type 2 Diabetes Mellitus in Woman*, 289 J. AM. MED. ASSOC. 1785 (2003); see also Nicolas Stettler, Theo M. Signer, and Paolo M. Suter, *Electronic Games and Environmental Factors Associated with Childhood Obesity in Switzerland*, 12 OBESITY RESEARCH 896 (2004) (finding inverse relationship for children in time spent watching television and physical activity).

⁸⁶ Nicolas Stettler, Theo M. Signer, & Paolo M. Suter, *Electronic Games and Environmental Factors Associated with Childhood Obesity in Switzerland*, 12 OBESITY RESEARCH 896 (2004) (finding that the use of electronic games was significantly associated with obesity in children). Although the authors find that both video games and television have a positive effect on the risk of obesity, the magnitude for video games is slightly smaller in magnitude, which they ascribe to the small amount of physical activity involved in playing some video games. *Id.* at 901. Although the amount of physical energy expended is minimal, it is still greater than the amount of activity expended watching television or other wholly sedentary activities. See KR Segal & WH Dietz, *Physiologic Responses to Playing a Video Game*, 145 AM. J. DIS. CHILD. 1034 (1991). According to some studies, in fact, the amount of energy expended watching television may be even less than that expended while sitting still. See R.C. Klesges, M.L. Shelton, & L.M. Klesges, *Effects of Television on Metabolic Rate: Potential Implications for Childhood Obesity*, 91 PEDIATRICS 281 (1993). An alternative hypothesis (which to the best of our knowledge has never been tested) is that because many video games require users to occupy both hands while playing, it may be that the propensity and opportunity to snack may be lessened when playing video games as opposed to watching television.

⁸⁷ See Donna M. Matheson, Joel D. Killen, Yun Wang, Ann Varady, & Thomas N. Robinson, *Children's Food Consumption During Television Viewing*, 79 AM. J. CLINICAL NUTRITION 1088 (2004); Lori A. Francis, Yoonna Lee, & Leann L. Birch, *Parental Weight Status and Girls'*

Of course, the snacking may be triggered in part by exposure to food ads; as previously discussed, however, children's ad exposure has been found to have a very small impact on their snacking.⁸⁸ Another possible explanation for the link between snacking and TV is that it is simply easier to eat while watching television than while pursuing other activities.

Television Viewing, Snacking, and Body Mass Indexes, 11 OBESITY RESEARCH 143 (2003).

⁸⁸Ruth N. Bolton, *Modeling the Impact of Television Food Advertising on Children's Diets*, CURRENT ISSUES AND RESEARCH IN ADVERTISING 173, (1983).

Although there has been a slow decline in television viewing, there has been an increase in non-television “screen time” — time in front of computers, video games, and videos and DVDs. According to the Kaiser Family Foundation study, in 1999 children watched a little under 3 hours of television per day.⁸⁹ But children also spent roughly 40 minutes per day watching videos and DVDs and an additional 20 minutes per day playing video games and using the computer.⁹⁰ Thus, while the amount of television viewing has dropped over time, it may be

⁸⁹ Kaiser Family Foundation, *Kids and Media @ the New Millenium* (Nov. 1999).

⁹⁰We are not aware of any studies on the amount of children-oriented food advertising presented on these non-television media. Observation suggests, however, that food advertising is much less prevalent on these alternative media than on television. DVDs and videos, for instance, are generally free of food advertising. Similarly, there appears to be little food advertising in Playstation or X-Box video games. Nothing systematic is known about the prevalence of food advertising on youth Internet sites, but again, it is does not appear to be as pervasive as on television. One of the authors recently conducted visits to several of the most popular children's web sites as identified by several sources. For younger children, almost all of the most popular websites were related to toys or games. For older youth, the sites tended to be for music, video games, or computer-related activities. None of the most popular websites were for food products and none of those visited appeared to contain obvious food advertising. In short, although there

that children's sedentary activity has in fact risen.⁹¹

Finally, the correlation between obesity and television viewing may arise from unobserved family or individual characteristics that affect diet, activity levels, and the propensity to watch TV. For example, parents who restrict their child's TV time may provide different foods than those who do not.

C. Does the evidence support the theory that advertising has caused the rise in obesity?

has been no systematic study of food advertising on the Internet or video games, it appears unlikely that children are being exposed to a substantial increase in food advertising through these new media.

⁹¹ This increase in "screen time" may also account for the widespread but inaccurate impression that television viewing has increased over time.

Overall, our review of the available public evidence suggests that currently there is little theoretical or empirical foundation to support the “advertising causes obesity” thesis or the inference that restrictions on food advertising would meaningfully reduce the incidence of childhood obesity. If the hypothesis were valid, there should be a corresponding increase in television food ad exposure that matched the increase in obesity rates. The amount of television food ads viewed by children appears to have declined or stayed stable over time, however, even as childhood obesity rates have increased.⁹² It is possible that a better explanation for the observed correlation between television viewing and obesity may be the sedentary nature of the activity or unobserved characteristics that influence both television time and eating habits. In short, our review of the evidence available at this time finds that the evidence does not appear to support the proposition that children are exposed to more food advertising today than 20 years ago and that this has caused the increased rate of childhood obesity.

III. Can Advertising Play a Positive Role?

Although current evidence suggests that advertising does not appear to be a significant factor in the rise of obesity (for children at least), this does not mean that advertising and marketing – and government policies toward them – cannot be part of the obesity problem’s solution. This possibility, however, is frequently misunderstood, and the role that markets can play in educating consumers about nutrition and in pushing firms to respond to consumer demand for healthier foods is undervalued. This part of the article describes the ways in which

⁹²We emphasize that this conclusion is based on limited data. Additional research on food ad exposure is required before a definitive answer can be obtained.

advertising can provide information to consumers that can result in healthier eating habits.

A. Advertising and Health Information

Truthful, non-misleading health information can benefit consumers and increase competition. First, such information helps consumers make better-informed weight conscious choices. Second, as health consequences of obesity become a more important consideration for consumers and thus guide their purchase decisions, marketers have an incentive to develop and market products based on their calorie content. This, in turn, can provide consumers with even healthier products and more information to aid their weight control efforts.

An example of how this beneficial cycle can operate involves the dissemination of advertising and labeling in the 1980s concerning the link between fiber in cereals and the risk of cancer. According to a 1989 FTC Bureau of Economics staff report, during the late 1970s and early 1980s “growing evidence [demonstrated] the link between reduced cancer rates and high fiber diets ... [but] there was no shift towards high fiber diets. However, as soon as producer advertising began in late 1984 there was a significant increase in market-share-weighted fiber content of cereals.”⁹³ Thus, even though “government and [other] general ...sources” provided information about the nutritional value of fiber, it was not until advertising practices changed

⁹³Pauline Ippolito & Alan Mathios, *Health Claims in Advertising and Labeling: A Study of the Cereal Market*, FTC Bureau of Economics Staff Report, at p. xi (1989).

that consumers began incorporating fiber into their diets.⁹⁴ In fact, this is because advertising reaches many consumers, such as low-income consumers, who are difficult to reach through public service messages and other sources of health information.

⁹⁴ *Id.* (“[O]n the basis of broad market averages for fiber consumption from cereals, the evidence suggests that producer advertising was a significant source of information on the potential benefits of fiber.”).

Likewise, the FTC staff report found that “manufacturers, in response to the growing demand for high fiber cereals and knowing that they could advertise the health benefits of fiber, responded by developing new high fiber cereals ... the number and proportion of new cereals of this type increased considerably during the health claim advertising period.”⁹⁵ The report also found that cereal producers responded to the increased demand for fiber by volunteering more information on labels: “virtually all cereals that contained anything above a trace of fiber voluntarily labeled the fact in 1988.”⁹⁶ The advertising of truthful and nondeceptive health information increased consumer awareness of the link between fiber and cancer risk, which increased demand for high fiber cereals. This, in turn, caused manufacturers to expand the range of high fiber cereals available to consumers in the market. In the end, this cycle went full circle: the increased demand for high fiber cereals, which was created in large part by advertising, led those cereal producers whose products contained fiber to further advertise this fact in order to serve that increased demand.

This example illustrates an important point: food advertisements may raise consumer awareness about the attributes and significance of the nutrients in particular foods and thereby prompt consumers to examine a food’s label for more nutrition information before purchase or consumption.⁹⁷ The greater the use of food product labels, the more likely it is that consumers

⁹⁵ *Id.* at xi - xii.

⁹⁶ *Id.* at xii.

⁹⁷ Consumer research suggests that consumers who know about diet-disease relationships or believe that diet is important for reducing disease risks are more likely to use nutrition labels. See, e.g., Marian L. Neuhouser *et al.*, *Use of Food Nutrition Labels Is Associated with Lower Fat Intake*, 99 J. AM. DIET. ASSOC. 45 (Jan. 1999); Lisa R. Szykman *et al.*, *A Proposed Model of the Use of Package Claims and Nutrition Labels*, 16 J. PUB. POL’Y & MKTG. 228 (Fall 1997);

will make prudent eating decisions. Advertising can be a useful facilitator of label usage.

Christine Moorman, *The Effects of Stimulus and Consumer Characteristics on the Utilization of Nutrition Information*, 17 J. CONSUM. RES. 362 (Dec. 1990).



bepress Legal Repository

Thus, food advertising and labeling can be a forceful factor in fighting the obesity problem in at least two ways. First, obviously, food labels and many food ads provide important information about the nature and effect of calories. Moreover, it is likely that food ads that feature nutrient content and health claims prompt consumers to examine the food label more closely. Second, but perhaps equally consequential, labeling information is critically important because consumers receive it close to their actual purchase decision.⁹⁸ Thus, by regulating food advertising and labeling, government regulatory policies can affect, for good or for ill, the nature and extent of health information that consumers receive about food products.

B. Application to Regulatory Policy

⁹⁸ According to a 1996 survey of 4,200 food shoppers, 70% of brand purchase decisions are made in the store, the point at which consumers are being directly exposed to label information. Point of Purchasing Advertising Institute, *1996 POPAI Consumer Buying Habits Study 8* (1996).

The previous section illustrated that health claims in ads can have a beneficial effect on eating habits. A recent study by the staff of the FTC's Bureau of Economics found that regulatory policy on food labeling standards can affect the prevalence of health claims in food advertising.⁹⁹ After food labeling standards were tightened in the early 1990s, calorie, dieting, and weight claims dropped substantially. For instance, in 1991, 22.5 percent of food ads made calorie, dieting, and weight claims; in 1992 it was less than 15 percent; it bottomed out at under 10 percent in 1995.¹⁰⁰ Small regulatory changes regarding a simple food label can have significant effects not only on information provided through labeling but also on advertising content and, ultimately, people's eating habits. The FTC staff recently filed a comment on labeling regulations in connection with the issue of obesity. The issues raised in the comment illustrate ways in which regulatory policy can impede or assist the efforts to reduce obesity rates.¹⁰¹

1. Serving Sizes

Prior to enactment of the Nutritional Labeling and Education Act ("NLEA"),¹⁰² food

⁹⁹Pauline Ippolito and Jan Pappalardo, *ADVERTISING NUTRITION & HEALTH: EVIDENCE FROM FOOD ADVERTISING 1977-1997* (2002).

¹⁰⁰*Id.* at 52, 53 Fig. 4-14.

¹⁰¹The following analysis is based on Comments of the Staff of the Bureau of Consumer Protection, the Bureau of Economics, and the Office of Policy Planning of the Federal Trade Commission before the Department of Health and Human Services, Food and Drug Administration In the Matter of Obesity Working Group; Public Workshop: Exploring the Link Between Weight Management and Food Labels and Packaging, Dkt. No. 2003NO338 (Dec. 12, 2003) ("Obesity Comment"). In March, 2004, FDA's Working Group on Obesity released *Calories Count: Report of the Working Group on Obesity*, which made several recommendations incorporating some of the FTC staff's comments.

¹⁰²21 U.S.C. § 343 *et seq.*

manufacturers were essentially free to set their own serving sizes, within reasonable bounds.¹⁰³

In enacting the NLEA, however, Congress mandated that serving size be linked to the amount that people customarily consume.

¹⁰³ See generally Committee on the Nutrition Components of Food Labeling, Food and Nutrition Board, Institute of Medicine, National Academy of Sciences, *Nutrition Labeling: Issues and Directions for the 1990s* 212 (D. Porter and R. Earl, Eds., 1990).

Current regulations require that food manufacturers provide nutrition information, including calories, based on the “serving size” of food products.¹⁰⁴ “Serving size” is defined by statute as the “amount [of the food] customarily consumed.”¹⁰⁵ To make that statutory mandate operational, serving sizes for various categories of food products are determined by FDA regulation in what are known as “reference amounts.”¹⁰⁶ A re-evaluation of existing reference amounts to determine whether they continue to represent amounts customarily consumed could aid individuals in their attempts to control calorie intake.¹⁰⁷

The current reference amounts are based primarily on data obtained through the 1977-78 and 1987-88 Nationwide Food Consumption Surveys conducted by the U.S. Department of Agriculture.¹⁰⁸ As discussed above, recent empirical evidence suggests that the amount of food that Americans customarily consume today has increased significantly since that data was collected. For instance, a review of nationwide food intake surveys from 1977-78, 1989, and

¹⁰⁴ See 21 U.S.C. § 343(q)(1).

¹⁰⁵ See 21 U.S.C. § 343(q)(1)(A)(i); see also 21 C.F.R. §101.9(b)(1) (“The term serving or serving size means an amount of food customarily consumed per eating occasion by persons 4 years of age or older which is expressed in a common household measure that is appropriate to the food.”). Unlike the serving sizes in the USDA’s Food Guide Pyramid, a serving size for purposes of FDA food labeling regulations does not represent an amount recommended for consumption. See *Food Labeling; Serving Sizes*, 58 Fed. Reg. 2229, 2232 (Jan. 6, 1993).

¹⁰⁶ See 21 C.F.R. §§ 101.9(b)(2); 101.12.

¹⁰⁷ 21 C.F.R. § 101.12(h) permits FDA, on its own initiative, to propose amending reference amounts. Note however that the FTC staff also stated that, when undertaking this review, FDA should consider copy testing or other consumer research to determine whether consumers interpret the serving size amounts on labels to be a representation of how much they *should* eat. If consumers in fact understand this information to be an indication of how much they should eat, increasing serving sizes may have the unintended consequence of increasing food consumption.

¹⁰⁸ See 21 C.F.R. § 101.12(b), Table 2 n.1.

1996 concluded that portion sizes for numerous types of foods grew substantially between 1977 and 1996.¹⁰⁹

¹⁰⁹ S. Nielsen & B. Popkin, *Patterns and Trends in Food Portion Sizes, 1977-1998*, J. OF THE AMER. MED. ASS'N (Jan. 22/29, 2003). See also H. Smiciklas-Wright *et al*, *Foods Commonly Eaten in the United States, 1989-1991 and 1994-1996: Are Portion Sizes Changing?*, 103 J. AM. DIET ASSOC. 41, 41-47 (2003); see also generally B. Rolls, *The Supersizing of America*, 38 NUTRITION TODAY 42 (Mar./Apr. 2003); Presentation of Susan Borra, International Food Information Council, "Consumer Interface with the Food Label," at 3-4 (Nov. 20, 2003) ("[Consumers] considered the serving size information on nutrition labels impractical") ("[Consumers] didn't feel the label information was representative of what people really eat."); Presentation of Susan Cummings, Member of the American Dietetic Association, "How Does the Current Labeling and Packaging Help or Hinder Those Engaged in Weight Loss Programs? A Dietitian's Perspective," at 5 (Nov. 20, 2003) ("[p]ackaged foods are not usually eaten in the exact portions listed.").

Obviously, if the actual portion sizes currently consumed by Americans are substantially larger than the serving sizes presented on the Nutrition Facts Panel, consumers may underestimate the number of calories and other nutrients they eat.¹¹⁰ Updating serving sizes to reflect current consumer behavior may be useful in helping calorie-conscious consumers make better choices in at least two ways.¹¹¹ First, accurate serving sizes can better inform consumers of the amount of calories they are likely to ingest from a particular food, which may prompt consumers to eat a smaller amount of that food or to adjust their intake of other foods. Second, accurate information can aid consumers in choosing between food products or food types based on calories, or other nutrients, per serving size.¹¹²

¹¹⁰ A food marketer, for instance, may make a “low fat” claim for a product with 2 grams of fat per serving. If consumers are eating twice the listed serving size for the product, they in fact would be consuming 4 grams of fat. Under FDA’s regulations, “low fat” claims on labels are restricted to products with 3 grams or less per serving. 21 C.F.R. § 101.62(b)(2)(i)(A).

¹¹¹ It is also important that any new serving size designations not validate “too large” servings.

¹¹² The Obesity comment offered the example of a calorie-conscious consumer who is trying to decide between having a bowl of cereal or two waffles for breakfast. Based on current label information, the consumer may decide to have a bowl of cereal with 110 calories per 30 gram (3/4 cup) serving size rather than two waffles with 140 calories (70 calories each). If the consumer’s actual cereal portion size is 45 grams (1 1/8 cups), however, the better caloric choice

2. Comparative Claims

would have been the two waffles (with 140 calories) rather than the bowl of cereal (with 165 calories). Obesity Comment at 11.

One of the primary tenets of economics is that competitive market pressures lead to increased consumer welfare as producers strive to meet consumer demand by introducing innovative products and more efficient production methods.¹¹³ However, in order to realize these gains, it is necessary that consumers be able to compare products. Thus, it is important that regulation not impede marketers' comparative calorie claims. In some cases food labeling regulations, policies, and practices inadvertently make it difficult for food marketers to make these claims and can be altered to facilitate such claims instead.

a. Reduced/Fewer Calorie Comparisons

¹¹³ As a general rule, comparative claims confer substantial benefits on consumers. The FTC has concluded that:

Comparative advertising, when truthful and non-deceptive, is a source of important information to consumers and assists them in making rational purchasing decisions. Comparative advertising encourages product improvement and innovation, and can lead to lower prices in the marketplace.

FTC Policy Statement in Regard to Comparative Advertising, 16 C.F.R. § 14.15(b).

Current food labeling regulations limit “reduced calorie” and “fewer calories” claims to foods that meet a minimum calorie reduction of 25 percent compared to an appropriate reference food.¹¹⁴ In addition, such claims are prohibited for any food that is already low calorie, defined as less than 40 calories per reference amount.¹¹⁵ ¹¹⁶ Although such rules may be a well-intentioned effort to reduce consumer confusion about these terms, they may ultimately harm consumer interest if they sweep too broadly and prohibit truthful and nondeceptive information. More importantly, such rules may also discourage food manufacturers from making substantial reductions in calories in foods because they cannot inform consumers of such a reduction unless it crosses the 25 percent threshold.

Certainly reduced calorie claims should not be made for trivial or meaningless reductions — such claims could undermine efforts to reduce obesity as consumers might believe that they are eating properly when they in fact are not.¹¹⁷ The current regulations, however, do not allow for small incremental calorie reductions that become nutritionally significant in the aggregate.¹¹⁸

¹¹⁴ Obesity Comment at 13-14, *citing* 21 C.F.R. § 101.60(b)(4).

¹¹⁵ *Id.*

¹¹⁶ Note that for purposes of consistency in labeling and advertising, the FTC has generally held advertisers to FDA’s 25 percent threshold for unqualified claims, such as “Brand X has fewer calories than Brand Y.” The Commission, however, permits advertisers to make reduced calorie claims for smaller relative changes as long as the basis for the comparison is clear and the advertiser provides sufficient information to prevent consumers from being misled about the amount and significance of the change. For example, “20 percent fewer calories than before, now only 80 calories per serving” is permissible. *See Federal Trade Commission Enforcement Policy Statement on Food Advertising*, 59 Fed. Reg. 28388, 28390-91 (June 1, 1994). In the Obesity Comment, the FTC staff recommended that FDA also permit such claims.

¹¹⁷ Such a calorie claim, even if truthful, might very well be considered deceptive.

¹¹⁸ The cumulative benefits of small incremental changes in caloric intake may be very significant in obesity rates. It has been estimated that even very modest daily changes have a

One can achieve the same reduction in total daily calorie consumption either through one or two large cuts in calorie consumption or by many smaller reductions across more food selections. Thus, it would benefit consumers if food marketers were permitted to make labeling claims highlighting either approach to dietary changes.¹¹⁹

substantial impact on weight over the long term. The Surgeon General's *Call to Action to Prevent and Decrease Overweight and Obesity*, for example, promotes a daily change of 150 calories, through eating less, exercising more, or a combination of the two, noting that such a change translates into a weight difference of 10 pounds in a year. *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001*, available at http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_whatcanyoudo.htm.

¹¹⁹ In addition, the current regulation imposes different approaches to calorie reductions of equal nutritional significance. Claims involving an identical absolute reduction in calories may be prohibited or permitted based on small differences in the total caloric content of the reference food. Thus, a reduced calorie claim is permitted for a food that has 50 fewer calories as long as the reference food has no more than 200 calories, whereas a reduced calorie claim would be prohibited for the same 50-calorie reduction if the reference food contained 210 calories. Eliminating the 25% threshold would also give manufacturers more latitude to make useful comparisons of the overall nutrient profile of food products. For example, the current

regulations would not allow the claim, “Our product now has 25% more fiber, 50% less fat and cholesterol, and 20% fewer calories.” The FTC staff argued that allowing the advertiser to highlight the 20% calorie reduction in addition to the changes in other nutrients is beneficial. It informs consumers of all of the ways in which the improved product is better, rather than implying that it is better only on the specific nutrient differences that meet the 25 % threshold.

b. Comparison to Food of Different Portion Size

Obesity researchers suggest that one effective approach to reducing calories is to reduce portion sizes.¹²⁰ Comparative claims between foods with different portion sizes could help consumers moderately reduce calories as consumers would be more aware of the benefits and availability of products with smaller portions. While this point may seem almost too obvious, in reality, offering consumers smaller portion sizes may help them control their food intake by reducing the amount of self-control necessary to eat a smaller portion. In turn, allowing food manufacturers to compete on this basis encourages them to offer limited-portion products to consumers who desire an additional aid to self-control.

However, the present regulatory regime only allows comparative claims between foods based on a standard serving size or an ounce for ounce basis for main dishes and meals.¹²¹ If comparative claims were allowed across, and not simply between portion sizes, it likely would encourage some firms to compete by offering healthier portion sizes. As such claims can be truthful and nondeceptive, a rule allowing them could be a potent anti-obesity tool.

c. Comparison to Food of Different Product Type

¹²⁰ See, e.g., Hill, et al. *supra* note. Note also that one of the American Diabetes Association's primary recommendations for weight loss is to reduce portion size. See also www.diabetes.org/weightloss-and-exercise/weightloss/losing-weight.jsp

¹²¹ 21 C.F.R. § 101.60(b).

Substituting across categories often can be an effective means of reducing calories, such as substituting applesauce for pudding as dessert. And permitting comparative caloric claims across categories could help consumers make these healthy substitutions. For instance, marketers could make claims such as, “Instead of cherry pie, try our delicious low fat cherry yogurt — 29 percent fewer calories and 86 percent less fat.”¹²² Such comparative claims could assist consumers in making better food choices as well as encourage firms to compete through marketing healthier foods as substitutes for less-healthy food choices.

d. Disclosure Requirements for Comparative Claims

While more information can be helpful, common sense also suggests that as messages become complicated and convoluted, they become less effective. If regulations require food labels to include a lot of information this may result in a labeling claim that is not readily understood by consumers. This would reduce the value of making that claim, and basic economics dictates that as the value of making a health claim is reduced, fewer health claims will be made.

¹²² Obesity Comment at 17.

Unnecessarily cumbersome disclosure requirements may have deterred truthful, non-misleading comparative label claims for foods.¹²³ Under current regulations, to make a comparative nutrient claim, a food marketer must provide information on the reference food, the percentage by which the nutrient in the reference food has been changed, and the absolute amount of the nutrient in the labeled and reference foods. While the current disclosure rule permits nutrient levels to be included on the package's front panel (thereby making it easier to attract a consumer's attention), the required length of the disclosure may add to label clutter, making the claim less comprehensible to consumers, and thereby decreasing the incentive of some firms to make these comparative claims at all. This may, in turn, deter development of healthier products.

3. Health Claims Linking Reduced Calorie Consumption to Reduction in Risk of Obesity-Related Diseases

It may also be beneficial to allow the label to claim that reduced calorie intake is a way to reduce the risk of the many diseases associated with obesity, such as heart disease, diabetes, and cancer.¹²⁴ The broad dissemination of this health claim would help educate consumers about the negative health consequences of being overweight or obese, and aid consumers in making better dietary choices.¹²⁵

¹²³ *Id.* at 17-18.

¹²⁴ Obesity Comment at 19.

¹²⁵ See *The Food and Drug Administration's Strategic Action Plan Protecting and Advancing America's Health: Responding to New Challenges and Opportunities* (FDA Aug. 2003).

These examples illustrate the types of review that government agencies should be undertaking to ensure that existing rules and regulations do not impede the ability of markets to respond efficiently to consumer demand for healthier and lower calorie food.

IV. Conclusion

Based on our review of the evidence and economic theory, we believe that a host of factors have contributed to the increased rate of obesity in the American population. Our review of the available evidence does not indicate that food marketing to children has grown markedly during the years that children's obesity has increased. Thus, it seems that food advertising is not a primary causal factor in children's increased obesity rate. Furthermore, there may be negative consequences to banning or restricting truthful food advertising. As the public becomes more educated on the importance of weight control to health, there may be increased pressure on marketers to compete on calorie content; food ad restrictions could inhibit such competition. Finally, some changes in food labeling rules could play an important role in bringing information to consumers and adding to firms' incentives to focus on the calorie profiles of their foods.