

## OBESITY AND ADVERTISING POLICY

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### INTRODUCTION

It is clear that Americans are getting fatter, both adults and children.<sup>2</sup> This development has led some to call for a ban on food advertising directed at children.<sup>3</sup> As noted by other participants in this symposium, some believe that there are numerous practical difficulties with such a policy.<sup>4</sup> 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 only as it pertains to children, as the calls to ban food ads are restricted to those ads directed at this group. 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

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<sup>2</sup> See HEALTH DEP'T, U.S. DEP'T OF HEALTH AND HUMAN SERV., 2002 CHARTBOOK ON TRENDS IN THE HEALTH OF AMERICANS (2002).

<sup>3</sup> See CENTER FOR SCIENCE IN THE PUBLIC INTEREST, PESTERING PARENTS: HOW FOOD COMPANIES MARKET OBESITY TO CHILDREN (2003) [hereinafter PESTERING PARENTS]; DALE KUNKEL ET AL., AMERICAN PSYCHOLOGICAL ASSOCIATION, PSYCHOLOGICAL ISSUES IN THE INCREASING COMMERCIALIZATION OF CHILDHOOD (2004) [hereinafter KUNKEL ET AL., PSYCHOLOGICAL ISSUES].

<sup>4</sup> See J. Howard Beales, III, *Advertising to Kids and the FTC: A Regulatory Retrospective That Advises the Present*, 12 GEO. MASON L. REV. 873 (2004).

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? Part III also 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.

## 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: (1) 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; (2) 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; (3) women's increased labor force participation has increased their value of time and thus prompted greater demand for convenience food and fast food; and (4) 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.<sup>5</sup> 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.<sup>6</sup> Hill et al. note that the National Health and Nutrition Examination Surveys indicate an average weight gain of 1.8 to 2.0 pounds per year in the 1990's.<sup>7</sup> They then show that the median weight gain is consistent with fifteen additional net calories per day and that the 90th percentile weight gain is consistent with an extra fifty 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 fifteen to thirty calories for the median weight and an increase of fifty to 100 calories for a person at the 90th per-

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<sup>5</sup> James O. Hill et al., *Obesity and the Environment: Where Do We Go from Here?* 299 *Sci.* 853, 854 (2003).

<sup>6</sup> Ten 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.*

<sup>7</sup> *Id.*

centile.<sup>8</sup> Thus, 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.<sup>9</sup>

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 addition, food is probably a normal good in economic terms; in other words, because people generally enjoy eating, 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%, which may reduce the amount of exercise in which people engage.<sup>10</sup> 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

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<sup>8</sup> *Id.* Some studies estimate that the efficiency may be as low as 50%. *Id.* Two pounds is 7000 extra net calories, which thus implies an increase of nineteen to thirty-eight per day.

<sup>9</sup> One ounce of cheese has approximately 100 calories, and a one mile walk expends approximately 100 calories.

<sup>10</sup> 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.

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 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.<sup>11</sup> 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, while 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 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.<sup>12</sup>

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

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<sup>11</sup> The 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. For example, one model discussed below incorporates habit formation and the difficulty of changing eating and exercise habits; another model, discussed in footnote 14, *infra*, 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. For example, in addition to genetic differences, people differ in their level of self-control. The models discussed here are useful as a guide to understanding the overall effects of policy-relevant factors on weight and obesity.

<sup>12</sup> See TOMAS J. PHILIPSON & RICHARD A. POSNER, THE LONG-RUN GROWTH IN OBESITY AS A FUNCTION OF TECHNOLOGICAL CHANGE 3-4 (Nat'l Bureau of Econ. Research, Working Paper No. W7423, 1999), available at <http://ssrn.com/abstract=227586> (last visited Oct. 18, 2004).

model, for example, excess weight could result as metabolism slows with age.<sup>13</sup> A person's chosen weight when adjustment costs are present will be greater than when they are not; however, it is still an optimal choice that considers all 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.<sup>14</sup>

Before turning to an examination of the specific hypothesis that advertising is a major 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.<sup>15</sup> 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.

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% in 1810, 67% in 1840, 56% in 1860, and only 12% in 1950.<sup>16</sup> The percentage of the labor force in highly active jobs, including agricultural workers and laborers, fell from 68 to 49% between 1910 and 1970 (0.32 percentage points per year) and from 45 to 42% between 1980 and 1990 (0.30 percentage points per

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<sup>13</sup> For a model which includes adjustment costs, see HEATHER L. BEDNAREK ET AL., GLUTTONY AND SLOTH VS. BLISS 7-23 (Working Paper, 2003), available at <http://ssrn.com/abstract=426700> (last visited Oct. 18, 2004).

<sup>14</sup> For 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 A. Akerlof, *Procrastination and Obedience*, AM. ECON. REV., May 1991, at 1; Ted O'Donoghue & Matthew Rabin, *Doing It Now or Later*, AM. ECON. REV., Mar. 1999, at 103.

<sup>15</sup> PHILIPSON & POSNER, *supra* note 12, at 7-10.

<sup>16</sup> DORA L. COSTA & RICHARD H. STECKEL, LONG-TERM TRENDS IN HEALTH, WELFARE, AND ECONOMIC GROWTH IN THE UNITED STATES 3-4 (Nat'l Bureau of Econ. Research, Working Paper No. H0076, 1995), available at <http://ssrn.com/abstract=190415> (last visited Oct. 18, 2004).

year).<sup>17</sup> 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”)<sup>18</sup> is negatively related to an index of job strenuousness, providing further support for this hypothesis.<sup>19</sup> 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.<sup>20</sup> The decline was fairly steady, with the exception of a spike associated with the oil shocks of the early 1970’s which put relative prices well above those of the early 1950’s for about five years.<sup>21</sup>

The evidence on changes in food prices and activity levels are largely consistent with this hypothesis. However, while annual increases in BMI were relatively steady through the end of the 1970’s, 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.<sup>22</sup> Trends in job-related activity and food prices, however, do not appear sufficient to explain this surge. 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 1970’s. 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.<sup>23</sup>

Recent technological advances in food preparation and distribution, beginning especially in the 1970’s, have made possible a wide range of prepared and convenience foods that require little or no preparation time in the home.<sup>24</sup> Adoption of the microwave has additionally reduced the time

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<sup>17</sup> David M. Cutler et al., *Why Have Americans Become More Obese?* 17 J. ECON. PERSP., Summer 2003, at 93, 103.

<sup>18</sup> BMI is weight in kilograms divided by height in meters squared. *Id.* at 95.

<sup>19</sup> DARIUS LAKDAWALLA & TOMAS PHILIPSON, THE GROWTH OF OBESITY AND TECHNOLOGICAL CHANGE: A THEORETICAL AND EMPIRICAL EXAMINATION 14 (Nat’l Bureau of Econ. Research Working Paper No. W8946, 2002), available at <http://ssrn.com/abstract=312659> (last visited Oct. 18, 2004).

<sup>20</sup> *Id.* at 2.

<sup>21</sup> *Id.* at 2 fig.3.

<sup>22</sup> Cutler et. al, *supra* note 17, at 95.

<sup>23</sup> *Id.* at 105.

<sup>24</sup> Foods 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.

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.<sup>25</sup>

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 two hours and seventeen minutes per day on meals in 1965 compared to one hour and nine minutes in 1995. Those who worked outside the home spent one hour and twenty-five minutes on meals in 1965 compared to forty-one 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: married men with non-working spouses increased their time from nine to fourteen minutes per day, and married men with working spouses increased their time from twelve to fourteen minutes per day.)<sup>26</sup>

Some of the time savings appear to have come courtesy of microwaves. The household incidence of microwaves has grown from 8% in 1978, to 83% in 1999.<sup>27</sup> 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 payment portion of more processed foods is smaller than for less processed foods such as eggs. Therefore, a drop in the percentage of the price of food that went to farmers—from 44% in 1972 to 23% 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.<sup>28</sup>

As mentioned above, the rate of decline in the percentage of the workforce in highly active jobs was about the same in the 1980's 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.<sup>29</sup> However, other factors may have affected activity levels. The

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<sup>25</sup> Calorie density is defined as calories per gram.

<sup>26</sup> Cutler et al., *supra* note 17, at 107 tbl.4.

<sup>27</sup> *Id.* at 106.

<sup>28</sup> Cutler et al., *supra* note 17. Use 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. *Id.* During the same time period, consumption of frozen potatoes (mostly french fries) increased from around 28 pounds to over 58 pounds per capita. *Id.*

<sup>29</sup> *Id.* at 103.

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.<sup>30</sup> 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.<sup>31</sup>

### 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 twenty-five years or so, it is probably not the full explanation. During the period of 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 ubiquity of fast food restaurants and their calorie dense offerings are a significant contributor to the obesity crisis.

Indeed, evidence shows that fast food restaurant business has been increasing. The per capita number of fast food outlets doubled between 1972 and 1997.<sup>32</sup> From 1982 through 1997, spending at fast food restaurants grew at an annual rate of 6.8%, while fast food prices only rose at a rate of 2%.<sup>33</sup> 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% for men and 45% for women).<sup>34</sup>

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

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<sup>30</sup> Shin-Yi Chou et al., *An Economic Analysis of Adult Obesity: Results from the Behavioral Risk Factor Surveillance System*, 23 J. HEALTH ECON. 565, 568 (2004). Also, labor force participation of married women went from 41% in 1970 to 62% in 1998. The 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*, AM. PROSPECT, Mar.-Apr. 1997, at 58, 66.

<sup>31</sup> Of course, earlier decades saw the expansion of television ownership without an associated rise in obesity.

<sup>32</sup> The per capita number of full service restaurants rose by 35% during the same period. Chou et al., *supra* note 30, at 568.

<sup>33</sup> Mark D. Jekanowski, *Causes and Consequences of Fast Food Sales Growth*, FOOD REV., Jan.-Apr. 1999, at 12.

<sup>34</sup> These figures were computed from Table 4 of DAVID CUTLER ET AL., WHY HAVE AMERICANS BECOME MORE OBESE? tbl.4 (Nat'l Bureau of Econ. Research, Working Paper No. 9446 2003) (This table is not in the published version of the paper.).

labor force participation.<sup>35</sup> 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.<sup>36</sup> 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.<sup>37</sup> Thus, their research suggests that the recent increase in obesity and overweight results from declining dollar and time costs of food, both at home and at restaurants.<sup>38</sup>

Many arguments for fast food as a contributor to obesity point to its higher calorie density than home prepared foods.<sup>39</sup> Indeed, in 1995 fast food provided 39.3% of calories from fat while home prepared food provided 31.5% calories from fat.<sup>40</sup> However, in 1977-78, both fast food and home food provided slightly over 41% of calories from fat.<sup>41</sup> Also, food at full service restaurants provided a higher percentage of calories from fat in both periods—46.2% in 1977-78 and 40.1% in 1995.<sup>42</sup> Yet, despite the decreases in caloric density in all dining categories, obesity rates increased markedly during this period.<sup>43</sup>

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 food will taste the same at each outlet of a particular chain. Chains, therefore, can base a reputation on dependable quality. These technological advances have also lowered the time costs for restaurants' food preparation and, in so doing, decreased restaurants' labor costs, which has helped keep their prices low.<sup>44</sup> 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.<sup>45</sup>

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<sup>35</sup> Chou et al., *supra* note 30, at 565-87.

<sup>36</sup> *Id.* at 571.

<sup>37</sup> *Id.* at 580-81.

<sup>38</sup> *Id.* at 584.

<sup>39</sup> *See, e.g., id.* at 568.

<sup>40</sup> BIING-HAWN LIN ET AL., AWAY-FROM-HOME FOODS INCREASINGLY IMPORTANT TO QUALITY OF AMERICAN DIET 9 tbl.6 (Econ. Research Serv., U.S. Dep't Agric., Agric. Info. Bulletin No. 749, 1999).

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> *See id.* at 7.

<sup>44</sup> *See* Chou et al., *supra* note 30, at 585.

<sup>45</sup> *Id.* at 568.

#### 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.<sup>46</sup> Labor force participation of married women rose from 41% in 1970 to 62% in 1998.<sup>47</sup> Single mothers also increased their labor market participation: in 1967, about 74% had worked in the previous year, while in 1996, 82% had worked in the previous year.<sup>48</sup> During the same time, the fraction of single mothers increased from 4% to 13%.<sup>49</sup> Also, between 1970 and 1990, the typical two-earner family increased the amount of time spent on the job by about one and a half days per week.<sup>50</sup> 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.<sup>51</sup> 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.

On the other hand, Cutler et al. find in an analysis of the 1977-78 and 1995 surveys that increased labor force participation is not a causal factor in the obesity epidemic.<sup>52</sup> 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 vice 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

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<sup>46</sup> See, e.g., *id.* at 585.

<sup>47</sup> SHIN-YI CHOU ET AL., AN ECONOMIC ANALYSIS OF ADULT OBESITY RESULTS FROM THE BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM 6 (Nat’l Bureau of Econ. Research, Working Paper No. 9247, 2002).

<sup>48</sup> Bruce D. Meyer & Dan T. Rosenbaum, *Making Single Mothers Work: Recent Tax and Welfare Policy and Its Effects*, 53 NAT’L TAX J. 1027, 1044 tbl.3 (2001).

<sup>49</sup> *Id.*

<sup>50</sup> Bluestone & Ross, *supra* note 30, at 58, 66.

<sup>51</sup> Of 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.

<sup>52</sup> Cutler et al., *supra* note 17, at 97-98.

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 contributes to weight gains through increases in the per capita 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.<sup>53</sup> 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% increase in the likelihood that her child is obese.<sup>54</sup> 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.<sup>55</sup> This finding of an effect only for high income families is puzzling.<sup>56</sup> 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.<sup>57</sup>

#### 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 1990's almost always greatly exceeded those offered fifteen to twenty-five years earlier.<sup>58</sup> They also examine introduction dates of larger portion sizes and find that the trend began in the 1970's, but accelerated in the 1980's and 1990's.<sup>59</sup> Rolls et al. find that people eat more when they are offered larger portions.<sup>60</sup> For example, when adults were offered macaroni and cheese in portions ranging from 2.5 to five cups, they ate 30% more from the five cup

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<sup>53</sup> Patricia M. Anderson et al., *Economic Perspectives on Childhood Obesity*, J. ECON. PERSP., 3d Quarter 2003, at 30, 30-48.

<sup>54</sup> *Id.* at 41.

<sup>55</sup> *Id.* at 41 tbl.3.

<sup>56</sup> *Id.* at 42.

<sup>57</sup> *Id.* at 43.

<sup>58</sup> Lisa Young, Ph.D, R.D. & Marion Nestle, Ph.D, M.P.H., *The Contribution of Expanding Portion Sizes to the U.S. Obesity Epidemic*, 92 AM. J. PUB. HEALTH 246, 246-47 (2002).

<sup>59</sup> *Id.* at 247.

<sup>60</sup> Barbara J. Rolls et al., *Portion Size of Food Affects Energy Intake in Normal-Weight and Overweight Men and Women*, 76 AM. J. CLINICAL NUTRITION 1207, 1209 (2002).

offering than the 2.5 cup one.<sup>61</sup> Furthermore, the study participants did not report feeling fuller after eating the larger amounts.<sup>62</sup>

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% of the increase for men and 112% of the increase for women.<sup>63</sup> (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 can be stored for some time in the home and are available at a moment's notice.

Changes in cigarette prices may also impact obesity rates. Chou et al. point out that the real price of cigarettes rose by 164% between 1980 and 2001.<sup>64</sup> They note that, on average, smokers have higher metabolic rates and consume fewer calories than non-smokers so that this increase in price could be a contributing factor to the increase in obesity rates.<sup>65</sup> Thus, the 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.<sup>66</sup>

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 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.

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<sup>61</sup> *Id.* at 1210.

<sup>62</sup> *Id.*

<sup>63</sup> Cutler et al., *supra* note 17, at 101 tbl.2. 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.

<sup>64</sup> Chou et al., *supra* note 30, at 568.

<sup>65</sup> *Id.* at 570.

<sup>66</sup> Even 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.

## II. ADVERTISING AND THE CHILDREN'S OBESITY EPIDEMIC

This part 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.<sup>67</sup> 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 or no information regarding the prevalence of other forms of marketing or how they may have changed over the past decades.<sup>68</sup>

A. *Advertising and Obesity: The Theory*

Many commentators have called for restrictions on food advertising justified by an assumption that such restrictions will help to fight childhood obesity.<sup>69</sup> To date, efforts to restrict commercial speech have been focused on children, rather than adults, although in practice regulatory efforts will have obvious spillovers. One justification for targeting efforts at childhood obesity is that being overweight or obese as a child substantially increases the likelihood that one will be obese as an adult.<sup>70</sup> Nonetheless, there has been little theoretical or empirical analysis of the central questions related

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<sup>67</sup> See GERARD HASTINGS ET AL., FOOD STANDARDS AGENCY, REVIEW OF RESEARCH ON THE EFFECTS OF FOOD PROMOTION TO CHILDREN: FINAL REPORT (2003), at <http://www.food.gov.uk/multimedia/pdfs/foodpromotiontochildren1.pdf> (last visited Oct. 20, 2004). The authors review 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. See discussion *infra* Part II.B.5.

<sup>68</sup> As we discuss below, there is a paucity of data on televised food advertising. See discussion *infra* Part II.B.2. There is, however, enough to obtain a preliminary assessment of its prevalence over time.

<sup>69</sup> See PESTERING PARENTS, *supra* note 3. KUNKEL ET AL., PSYCHOLOGICAL ISSUES, *supra* note 3, at 1.

<sup>70</sup> See THE CTR. FOR HEALTH AND HEALTH CARE IN SCHS., THE GEORGE WASHINGTON UNIV., CHILDHOOD OBESITY: WHAT THE RESEARCH TELLS US, at <http://www.healthinschools.org/sh/obesityfs.asp> (last visited Oct. 18, 2004); see also *The Role of Media in Childhood Obesity*, ISSUE BRIEF (The Henry J. Kaiser Family Found., Menlo Park, Cal.), Feb. 2004, at 1 [hereinafter *The Role of Media*] (citing Dennis M. Styne, MD, *Childhood and Adolescent Obesity: Prevalence and Significance*, 48 PEDIATRIC CLINICS OF N. AM. 823 (2001)), at <http://www.kff.org/entmedia/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=32022> (last visited Oct. 18, 2004).

to the “advertising causes obesity” thesis. Thus, this section 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.<sup>71</sup> 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 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.<sup>72</sup> 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 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.”<sup>73</sup> 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.

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.

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<sup>71</sup> Economists find strong evidence for the brand-switching effect but mixed evidence for the overall demand-increasing effect. See discussion *infra* Part II.B.5.

<sup>72</sup> Children 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 et al., *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 ASS’N 1326, 1329 (2003).

<sup>73</sup> *Information or Manipulation? Regulators Urged to Further Limit Ads Aimed at Children*, WASH. POST, Feb. 24, 2004, at E1.

(2) Children and youth are watching the same amount of TV, but more minutes per hour are dedicated to ads than before.

(3) Children and youth are watching the same amount of TV, the amount of advertising per hour is the same, but the *composition* of ads has changed such that kids are seeing more ads for food and fewer ads for other products directed at children, such as toys and videos.

(4) The amount of advertising is the same, but their 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, 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 1970’s to about 2.75 hours per day in 1999.<sup>74</sup> The percentage of children who watched four

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<sup>74</sup> See KAISER FAMILY FOUNDATION, *KIDS AND MEDIA @ THE NEW MILLENNIUM* (1999) (regarding children ages 2 to 18) [hereinafter KAISER FAMILY FOUNDATION, *KIDS AND MEDIA*], available at [www.kff.org/entmedia/1535-index.cfm](http://www.kff.org/entmedia/1535-index.cfm) (last visited Oct. 18, 2004); 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 (1999), 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”).

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.<sup>75</sup> These downward trends in television viewing were consistent across eighth grade, tenth grade, and twelfth grade children surveyed.<sup>76</sup> Similarly, a survey of the U.S. 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.<sup>77</sup> Therefore, 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; if so, 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 with varying amounts of advertising. Children now watch substantially more cable television than all "free" children's television (network, network affiliates, syndication, and PBS) combined.<sup>78</sup> 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 Nickelodeon, have less outside product advertising than

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<sup>75</sup> Child Trends Data Bank, at [www.childtrendsdatabank.org](http://www.childtrendsdatabank.org) (last visited Oct. 18, 2004).

<sup>76</sup> *Id.*

<sup>77</sup> OFFICE OF THE ASSISTANT SEC'Y FOR PLANNING & EVALUATION, U.S. DEP'T OF HEALTH AND HUMAN SERVS., TRENDS IN THE WELL-BEING OF AMERICA'S CHILDREN & YOUTH (1997), available at <http://aspe.hhs.gov/hsp/97/trends/sd1-5.htm> (last visited Oct. 18, 2004). 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%. *Id.* There was a slight upward trend for seventeen-year-olds from 5% to 8%. *Id.*

<sup>78</sup> See Rublin, *supra* note 74.

does broadcast television.<sup>79</sup> Moreover, food advertisements comprise a substantially greater percentage of the advertisements on children's shows on broadcast television than on cable alternatives.<sup>80</sup> 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 use of 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.<sup>81</sup> Again, these factors tend to suggest that children are seeing less, rather than more, advertising on television than in the past.

An analysis of Nielsen data fails to find any substantial increase in either expenditures on food advertisements or exposure to food advertising over the last ten years.<sup>82</sup> 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.

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<sup>79</sup> According to one study, broadcast television has 10:05 minutes of product advertising per hour and cable television (Nickelodeon and USA Network in the study) has only 6:48 minutes per hour. Dale Kunkel & Walter Gantz, *Children's Television Advertising in the Multichannel Environment*, 42 J. COMM. 134, 142-43 (1992) [hereinafter Kunkel & Gantz, *Children's Television Advertising*]. The researchers found that cable stations tend to dedicate substantially more non-program time to promotion of their own shows than do broadcast networks.

<sup>80</sup> Advertisements for food products comprised 72% of the ad time on broadcast television and only 36% of the ad time on cable television. *Id.* at 142. Commercials for toys comprise a substantially larger percentage of the ads on cable television than food products.

<sup>81</sup> See Martin Peers, *Buddy Can You Spare Some Time?*, WALL ST. J., Jan. 26, 2004, at B1, 2004 WL-WSJ 56918067. 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 a bathroom break. See Julia Angwin et al., *Hot-Button Topic: In Embracing Digital Recorders, Cable Companies Take Big Risk*, WALL ST. J., Apr. 26, 2004, at A1, 2004 WL-WSJ 56927162.

<sup>82</sup> See Dan Jaffe, *Kids, Cartoons, and Cookies: Should We Restrict the Marketing of Food to Children?*, Presentation for the CATO Policy Forum (June 7, 2004) (presenting Nielsen Media Research, Inc. data), at <http://www.cato.org/events/jaffe-06-07-04.ppt> (last visited Oct. 18, 2004).

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 1970's, 30,000 in the 1980's, and 40,000 in the 1990's, and that in 1999 the average TV viewer (including adults) watched approximately 60,000 ads per year.<sup>83</sup> The estimates appear to be drawn from a content analysis of programming directed to children.<sup>84</sup> 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.<sup>85</sup> The method used to obtain the yearly estimated exposure from the content analysis is not clear from the published paper.<sup>86</sup> However, as discussed below, the 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).<sup>87</sup> 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. Finally, many children today

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<sup>83</sup> Dale Kunkel & Mary McIlrath, *Message Content in Advertising to Children*, in *THE FACES OF TELEVISUAL MEDIA: TEACHING, VIOLENCE, SELLING TO CHILDREN* 288 (Edward L. Palmer & Brian M. Young eds., 2003) [hereinafter Kunkel & McIlrath, *Message Content*]. 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, June 7, 2004, at 87.

<sup>84</sup> The primary sources are: RICHARD ADLER ET AL., RESEARCH ON THE EFFECTS OF TELEVISION ADVERTISING ON CHILDREN: A REVIEW OF THE LITERATURE AND RECOMMENDATIONS FOR FUTURE RESEARCH, 13 (1977) (reporting 20,000 minutes of commercials); see also G. COMSTOCK AND E. SCHARRER, TELEVISION: WHAT'S ON, WHO'S WATCHING, AND WHAT IT MEANS 54 (1999) (reporting 60,000 minutes of commercials); John Condry et al., *Nonprogram Content of Children's Television*, 32 J. BROAD. & ELEC. MEDIA 266 (1988). See generally Kunkel & Gantz, *Children's Television Advertising*, *supra* note 79.

<sup>85</sup> Kunkel & Gantz, *Children's Television Advertising*, *supra* note 79, at 139.

<sup>86</sup> Others 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 1970's. 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.

<sup>87</sup> JOHN D. ABEL, COMMENT ON FTC CHILDREN'S RULEMAKING: THE CHILD AUDIENCE FOR NETWORK TELEVISION PROGRAMMING AND ADVERTISING (1978).

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.

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 two and eighteen years old watched an average of two hours and forty-six minutes of TV per day.<sup>88</sup> According to their 2004 report, children between four and six years old watched an average of one hour and ten minutes of TV per day.<sup>89</sup> Thus, if the two to eighteen year-olds were watching 40,000 ads per year as calculated by Kunkel and Gantz, they must have watched forty ads per hour. If the four to six year-olds saw 40,000 ads per year, they were viewing approximately ninety-four ads per hour. This seems unlikely.<sup>90</sup>

Several authors have measured the average number of ads per hour, or minutes of ads per hour, on shows directed at children.<sup>91</sup> Taras and Gage measured twenty-one ads per hour in 1993, Kotz and Story measured nineteen ads per hour in 1992, and Kunkel and Gantz measured nine minutes of ads per hour in 1990.<sup>92</sup> These measures suggest that exposure for the two to eighteen year-olds is more likely around 20,000 per year and under 10,000 for the four to six 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 1970's. What is clear is that some of the estimates that are often quoted appear to be implausible.

### 3. Changes in Ad Composition

The available evidence we have examined thus far indicates that children are not watching more television and that they are not likely being exposed to more advertising per hour of television. An alternative explanation for an increase in children's exposure to food ads, then, is that the pro-

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<sup>88</sup> KAISER FAMILY FOUNDATION, KIDS AND MEDIA, *supra* note 74.

<sup>89</sup> *The Role of Media*, *supra* note 70.

<sup>90</sup> 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.

<sup>91</sup> Note this may not correspond to the average number of ads on shows that the largest number of children watch.

<sup>92</sup> Krista Kotz & Mary Story, *Food Advertisements During Children's Saturday Morning Television Programming: Are They Consistent with Dietary Recommendations?*, 94 J. AM. DIETETIC ASS'N 1296 (1994); Kunkel & Gantz, *Children's Television Advertising*, *supra* note 79, at 142 tbl.1; Howard L. Taras & Miriam Gage, *Advertised Foods on Children's Television*, 149 ARCHIVES PEDIATRIC ADOLESCENT MED. 649 (1995).

portion 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.

This explanation, however, 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 traditionally has been dominated by foods with limited nutritional value, such as 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. While it is often remarked that “junk food” advertising comprises as much as 50% or more of the advertising currently broadcast on children's television,<sup>93</sup> 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% in 1977 to 46% in 1992.<sup>94</sup> 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.<sup>95</sup> These declines were offset primarily by increases in ads for toys.<sup>96</sup>

Moreover, some recent evidence suggests that the increase in advertisements for children's DVDs and videos may 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 advertising of those products is coming at the expense of advertising for food products.<sup>97</sup>

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

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<sup>93</sup> See Dale Kunkel, *Children and Television Advertising*, in HANDBOOK OF CHILDREN AND THE MEDIA 377 (Dorothy G. Singer & Jerome L. Singer eds., 2001).

<sup>94</sup> Kunkel & McIlrath, *Message Content*, *supra* note 83, at 291.

<sup>95</sup> *Id.*

<sup>96</sup> *Id.*

<sup>97</sup> ELIANA SHIAO TSENG, CONTENT ANALYSIS OF CHILDREN'S TELEVISION ADVERTISING TODAY (Working Paper, 2002), available at [http://www.ciadvertising.org/student\\_account/fall\\_01/adv392/estseng/ContentAnalysis/ContentAnalysis.html](http://www.ciadvertising.org/student_account/fall_01/adv392/estseng/ContentAnalysis/ContentAnalysis.html) (last visited Oct. 18, 2004).

#### 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.<sup>98</sup> 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 consumption of heavily advertised foods by children and youth would tend to rise over time relative to their parents.

On the contrary, the food consumption patterns of children and adults have been quite similar over the past two decades.<sup>99</sup> 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.<sup>100</sup> Interestingly, consumption of desserts has actually fallen for youth but has remained constant for adults.<sup>101</sup> This suggests either that parents are not giving in more, or that children's requests are influencing their parents' diets as well.

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.<sup>102</sup> 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.<sup>103</sup>

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<sup>98</sup> KUNKEL ET AL., PSYCHOLOGICAL ISSUES, *supra* note 3, at 11.

<sup>99</sup> See Samara Joy Nielsen et al., *Trends in Energy Intake in U.S. Between 1977 and 1996: Similar Shifts Seen Across Age Groups*, 10 OBESITY RESEARCH 370, 370 (2002).

<sup>100</sup> *Id.* at 376.

<sup>101</sup> *See id.* at 370-75.

<sup>102</sup> Simone A. French et al., *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).

<sup>103</sup> See Jayachandran N. Variyam, *Overweight Children: Is Parental Nutrition Knowledge a Factor?*, FOOD REV., May-Aug. 2001, at 18, 20-21.

## 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.<sup>104</sup> Empirical evidence on the effect of brand advertising on *overall* demand, however, is quite mixed, with results varying across industries.<sup>105</sup> For example, a positive effect of brand advertising on overall demand has been found for the U.S. auto industry, while a negative effect has been found for the U.K. instant-coffee market.<sup>106</sup>

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.<sup>107</sup> 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."<sup>108</sup> 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?

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 qual-

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<sup>104</sup> See Kyle Bagwell, *The Economic Analysis of Advertising* 27-31 (March 2003) (unpublished manuscript), at <http://www.columbia.edu/~kwb8/Adchap2003-combined.pdf> (last visited Oct. 18, 2004).

<sup>105</sup> *Id.* at 26-54; see also JEAN JACQUES LAMBIN, *ADVERTISING, COMPETITION AND MARKET CONDUCT IN OLIGOPOLY OVER TIME: AN ECONOMETRIC INVESTIGATION IN WESTERN EUROPEAN COUNTRIES*, § 6.6 (1976).

<sup>106</sup> KEITH COWLING ET AL., *ADVERTISING AND ECONOMIC BEHAVIOR* (1975); J.E. Kwoka, Jr., *The Sales and Competitive Effects of Styling and Advertising Practices in the U.S. Auto Industry*, 75 *REV. ECON. & STAT.* 649 (1993).

<sup>107</sup> See MARION NESTLE, *FOOD POLITICS* (2002); PESTERING PARENTS, *supra* note 3.

<sup>108</sup> David S. Ludwig & Steven L. Gortmaker, *Programming Obesity in Childhood*, 364 *LANCET* 226, 226 (2004).

ity.<sup>109</sup> 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.<sup>110</sup> The study did find a positive, but very small, effect of TV ads on snacking: an additional twelve hours of TV per week is associated with the consumption of one additional snack per week (which increased calorie intake by approximately 1.5%).<sup>111</sup> The study also found a small negative impact on the quality of the diet.<sup>112</sup> 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.<sup>113</sup> Additional research along these lines would help ascertain the impact of food marketing on dietary habits.

## 6. Other Interpretations of the TV-Obesity Link

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.<sup>114</sup> Recent research indicates, for instance, that notwithstanding the largely commercial-free nature of video games, they too are an important risk factor for obesity.<sup>115</sup> This suggests that it may be the sedentary nature of television

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<sup>109</sup> Ruth N. Bolton, *Modeling the Impact of Television Food Advertising on Children's Diets*, 6 CURRENT ISSUES & RES. ADVERTISING 173, 187-91 (1983).

<sup>110</sup> *Id.*

<sup>111</sup> *Id.*

<sup>112</sup> *Id.* at 194-95.

<sup>113</sup> *Id.* at 187-91.

<sup>114</sup> F.B. Hu et al., *Television Watching and Other Sedentary Behaviors in Relation to Risk of Obesity and Type 2 Diabetes Mellitus in Women*, 289 JAMA 1785 (2003); see also Nicolas Stettler et al., *Electronic Games and Environmental Factors Associated with Childhood Obesity in Switzerland*, 12 OBESITY RESEARCH 896 (2004) (finding an inverse relationship for children in time spent watching television and physical activity).

<sup>115</sup> Stettler et al., *supra* note 114, at 896 (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 Karen R. Segal & William H. 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 Robert C. Klesges et al., *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

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.<sup>116</sup> 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.<sup>117</sup> 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.

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.<sup>118</sup> But children also spent roughly forty minutes per day watching videos and DVDs and an additional twenty minutes per day playing video games and using the computer.<sup>119</sup> Thus, while the amount of television viewing has dropped over time, it may be that children’s sedentary activity has in fact risen.<sup>120</sup>

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.

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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.

<sup>116</sup> See Lori A. Francis et al., *Parental Weight Status and Girls’ Television Viewing, Snacking, and Body Mass Indexes*, 11 OBESITY RES. 143 (2003); Donna M. Matheson et al., *Children’s Food Consumption During Television Viewing*, 79 AM. J. CLINICAL NUTRITION 1088 (2004).

<sup>117</sup> Bolton, *supra* note 109.

<sup>118</sup> KAISER FAMILY FOUNDATION, KIDS AND MEDIA, *supra* note 74.

<sup>119</sup> *Id.* We 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 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 websites 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 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.

<sup>120</sup> This increase in “screen time” may also account for the widespread but inaccurate impression that television viewing has increased over time.

C. *Does the Evidence Support the Theory that Advertising has Caused the Rise in Obesity?*

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.<sup>121</sup> 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 twenty 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 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

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<sup>121</sup> We emphasize that this conclusion is based on limited data. Additional research on food ad exposure is required before a definitive answer can be obtained.

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 1980's 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 1970's and early 1980's:

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.<sup>122</sup>

Thus, even though "government and [other] general . . . sources" provided information about the nutritional value of fiber, it was not until advertising practices changed that consumers began incorporating fiber into their diets.<sup>123</sup> 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.

Likewise, the FTC staff report found:

[M]anufacturers, 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.<sup>124</sup>

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."<sup>125</sup> 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 nutri-

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<sup>122</sup> PAULINE IPPOLITO & ALAN MATHIOS, FED. TRADE COMM'N, HEALTH CLAIMS IN ADVERTISING AND LABELING: A STUDY OF THE CEREAL MARKET xi (1989).

<sup>123</sup> *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 . . .").

<sup>124</sup> *Id.* at xi-xii.

<sup>125</sup> *Id.* at xii.

ents in particular foods, and thereby prompt consumers to examine a food's label for more nutrition information before purchase or consumption.<sup>126</sup> The greater the use of food product labels, the more likely it is that consumers will make prudent eating decisions. Advertising can be a useful facilitator of label usage.

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.<sup>127</sup> 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*

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.<sup>128</sup> After food labeling standards were tightened in the early 1990's, calorie, dieting, and weight claims dropped substantially. For instance, in 1991, 22.5% of food ads made calorie, dieting, and weight claims; in 1992 it was less than 15%; it bottomed out at under 10% in 1995.<sup>129</sup> 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

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<sup>126</sup> 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.*, Christine Moorman, *The Effects of Stimulus and Consumer Characteristics on the Utilization of Nutrition Information*, 17 J. CONSUMER RES. 362, 371-72 (1990); Marian L. Neuhouser, Ph.D, R.D. *et al.*, *Use of Food Nutrition Labels Is Associated with Lower Fat Intake*, 99 J. AM. DIET. ASS'N 45 (1999); Lisa R. Szykman *et al.*, *A Proposed Model of the Use of Package Claims and Nutrition Labels*, 16 J. PUB. POL'Y & MARKETING 228, 228 (1997).

<sup>127</sup> 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 ADVER. INST., 1996 POPAI CONSUMER BUYING HABITS STUDY 8 (1996).

<sup>128</sup> PAULINE IPPOLITO & JAN PAPPALARDO, *ADVERTISING NUTRITION & HEALTH: EVIDENCE FROM FOOD ADVERTISING 1977-1997* (2002).

<sup>129</sup> *Id.* at 52, 53 fig.4-14.

raised in the comment illustrate ways in which regulatory policy can impede or assist the efforts to reduce obesity rates.<sup>130</sup>

### 1. Serving Sizes

Prior to enactment of the Nutritional Labeling and Education Act (“NLEA”),<sup>131</sup> food manufacturers were essentially free to set their own serving sizes, within reasonable bounds.<sup>132</sup> In enacting the NLEA, however, Congress mandated that serving size be linked to the amount that people customarily consume.<sup>133</sup>

Current regulations require that food manufacturers provide nutrition information, including calories, based on the “serving size” of food products.<sup>134</sup> “Serving size” is defined by statute as the “amount [of the food] customarily consumed.”<sup>135</sup> 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.”<sup>136</sup> 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.<sup>137</sup>

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<sup>130</sup> The following analysis is based on OBESITY WORKING GROUP, U.S. FOOD & DRUG ADMIN., EXPLORING THE LINK BETWEEN WEIGHT MANAGEMENT AND FOOD LABELS AND PACKAGING (2003) [hereinafter OBESITY COMMENT] (containing the 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), available at <http://www.ftc.gov/be/v04003text.pdf> (last visited Oct. 18, 2004). On March 12, 2004, FDA’s Working Group on Obesity released a new report which made several recommendations incorporating FTC staff comments. See OBESITY WORKING GROUP, U.S. FOOD & DRUG ADMIN., CALORIES COUNT: REPORT OF THE WORKING GROUP ON OBESITY (2004), available at <http://www.cfsan.fda.gov/~dms/owg-toc.html> (last visited Oct. 18, 2004).

<sup>131</sup> 21 U.S.C. § 343-1 (2000).

<sup>132</sup> See generally NUTRITION LABELING: ISSUES AND DIRECTIONS FOR THE 1990’S 212 (D. Porter & R. Earl eds., 1990).

<sup>133</sup> See 21 U.S.C. § 343(q)(1)(A)(i) (2000).

<sup>134</sup> See *id.* § 343(q)(1).

<sup>135</sup> See *id.* § 343(q)(1)(A)(i); see also 21 C.F.R. § 101.9(b)(1) (2004) (“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 do not represent an amount recommended for consumption. See Food Labeling; Serving Sizes, 58 Fed. Reg. 2229, 2232 (Jan. 6, 1993).

<sup>136</sup> See 21 C.F.R. §§ 101.9(b)(2), 101.12 (2004).

<sup>137</sup> 21 C.F.R. § 101.12(h) (2004) 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

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.<sup>138</sup> 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 1996 concluded that portion sizes for numerous types of foods grew substantially between 1977 and 1996.<sup>139</sup>

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.<sup>140</sup> Updating serving sizes to reflect current consumer behavior may be useful in helping calorie-conscious consumers make better choices in at least two ways.<sup>141</sup> 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.<sup>142</sup>

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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.

<sup>138</sup> See 21 C.F.R. § 101.12(b), tbl.2 n.1 (2004).

<sup>139</sup> Samara Joy Nielsen & Barry M. Popkin, *Patterns and Trends in Food Portion Sizes, 1977-1998*,

289 JAMA 450 (2003); see also Helen Smiciklas-Wright et al., *Foods Commonly Eaten in the United States, 1989-1991 and 1994-1996: Are Portion Sizes Changing?*, 103 J. AM. DIET ASS'N 41, 41-47 (2003). See generally Barbara J. Rolls, *The Supersizing of America*, 38 NUTRITION TODAY 42 (2003); Susan Borra, Consumer Interface with the Food Label, Presentation at the Scientific Workshop on Exploring the Link Between Weight Management and Food Labels and Packaging (Nov. 20, 2003) (stating that “[Consumers] considered the serving size information on nutrition labels impractical” and that “[Consumers] didn’t feel the label information was representative of what people really eat”), at <http://www.fda.gov/ohrms/dockets/dockets/03n0338/03n-0338-tr00003.htm> (last visited Oct. 18, 2004); Susan Cummings, How Does the Current Labeling and Packaging Help or Hinder Those Engaged in Weight Loss Programs? A Dietitian’s Perspective, Presentation at the Scientific Workshop on Exploring the Link Between Weight Management and Food Labels and Packaging (Nov. 20, 2003) (stating that “[p]ackaged foods are not usually eaten in the exact portions listed”), at <http://www.fda.gov/ohrms/dockets/dockets/03n0338/03n-0338-tr00003.htm> (last visited Oct. 18, 2004).

<sup>140</sup> 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) (2004).

<sup>141</sup> It is also important that any new serving size designations not validate “too large” servings.

<sup>142</sup> 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. See OBESITY COMMENT, *supra* note 130, at 11. 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

## 2. Comparative Claims

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.<sup>143</sup> 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, but can be altered to facilitate such claims instead.

### a. *Reduced/Fewer Calorie Comparisons*

"Current food labeling regulations limit 'reduced calorie' and 'fewer calories' claims to foods that meet a minimum calorie reduction of 25% compared to an appropriate reference food."<sup>144</sup> In addition, such claims are prohibited for any food that is already low calorie, defined as less than 40 calories per reference amount.<sup>145</sup> 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% threshold.

Certainly reduced calorie claims should not be made for trivial or meaningless reductions—such claims could undermine efforts to reduce

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caloric choice would have been the two waffles (with 140 calories) rather than the bowl of cereal (with 165 calories). *Id.*

<sup>143</sup> 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 purchase decisions. Comparative advertising encourages product improvement and innovation, and can lead to lower prices in the marketplace." 16 C.F.R. § 14.15(c) (2004).

<sup>144</sup> OBESITY COMMENT, *supra* note 130, at 13 (citing 21 C.F.R. § 101.60(b)(4) (2004)).

<sup>145</sup> *Id.* at 13-14. Note that for purposes of consistency in labeling and advertising, the FTC has generally held advertisers to FDA's 25% 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[%] 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. See OBESITY COMMENT, *supra* note 130.

obesity as consumers might believe that they are eating properly when they, in fact, are not.<sup>146</sup> The current regulations, however, do not allow for small incremental calorie reductions that become nutritionally significant in the aggregate.<sup>147</sup> 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.<sup>148</sup>

b. *Comparison to Food of Different Portion Size*

Obesity researchers suggest that one effective approach to reducing calories is to reduce portion sizes.<sup>149</sup> 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.

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<sup>146</sup> Such a calorie claim, even if truthful, might very well be considered deceptive.

<sup>147</sup> 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 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 1 (2001), at <http://www.surgeongeneral.gov/topics/obesity/calltoaction/CalltoAction.pdf> (last visited Oct. 18, 2004).

<sup>148</sup> 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.

<sup>149</sup> See, e.g., Hill et al., *supra* note 5. Note also that one of the American Diabetes Association's primary recommendations for weight loss is to reduce portion size. See *Losing Weight: What Does it Take?*, at <http://www.diabetes.org/weightloss-and-exercise/weightloss/losing-weight.jsp> (last visited Oct. 18, 2004).

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.<sup>150</sup> 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*

Substituting across categories often can be an effective means of reducing calories, such as substituting applesauce for pudding as dessert. Thus, 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% fewer calories and 86% less fat.”<sup>151</sup> 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.

Unnecessarily cumbersome disclosure requirements may have deterred truthful, non-misleading comparative label claims for foods.<sup>152</sup> 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

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<sup>150</sup> 21 C.F.R. § 101.60(b) (2004).

<sup>151</sup> OBESITY COMMENT, *supra* note 130, at 17.

<sup>152</sup> *Id.* at 17-18.

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.<sup>153</sup> 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.<sup>154</sup>

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.

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<sup>153</sup> *Id.* at 19.

<sup>154</sup> See FOOD & DRUG ADMIN., STRATEGIC ACTION PLAN PROTECTING AND ADVANCING AMERICA'S HEALTH: RESPONDING TO NEW CHALLENGES AND OPPORTUNITIES 18-21 (2003).