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Counting Calories

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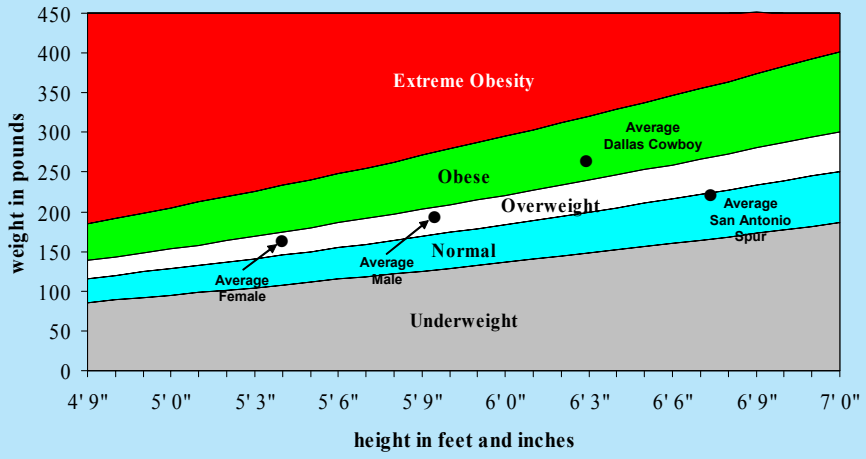
We all have read and seen the media accounts of the rising obesity rates in the United States. High sugar snacks and soft drinks have been banned from many public school campuses, and fast food chains have been threatened with litigation. Heart disease and diabetes, conditions that have higher morbidity and mortality rates, are two of a variety of conditions linked to excess body weight. With all this attention, it appears that combating obesity is the next public health crisis on the radar screen.

Documenting changes in average body weight over time is aided by the use of a height-adjusted measure known as the body mass index (BMI), defined as weight in kilograms divided by height in meters squared. This measure provides a rough idea of whether any given individual is too heavy for his or her height.

Figure 1 displays the ranges of height and weight combinations classified as underweight, normal, overweight, obese, and extremely obese. For each height and weight combination, a BMI can be calculated. For example, all height and weight combinations falling in the light blue area in the figure are considered normal. As points of reference, we have provided the average male and female adult BMI in the figure. Both fall squarely in the overweight BMI range. The average male is just over five feet nine inches tall and weighs 194 pounds, while the average female is about five feet four inches and weighs 164 pounds. We also depicted the average BMI of two groups of professional athletes. The average Dallas Cowboy is six feet three inches tall and weighs 258 pounds which produces a BMI in the obese range. Considering the range of players on a football team, from offensive to defensive linemen to wide receivers or corner backs, this may not be surprising. But the height and weight combination may also bring to mind the ideal linebacker with little or no body fat. What may be surprising is the location of the average San Antonio Spur in the figure. Their average height of over six feet seven inches and average weight of 224 pounds produces a BMI that is almost in the overweight range. The examples of the professional athletes, with their high muscle mass, simply indicate that the BMI categories are probably only useful indicators for average individuals. A rising obesity level in the general population continues to be a concern, unless the rise is primarily associated with a general rise in lean muscle mass.

The percentages of men and women who are categorized as overweight or obese are depicted in Figure 2. Over the 40 year span, the percentage of men who were overweight or above rose from about 50 percent to almost 70 percent, while the percentage of overweight women rose from 40 to just over 60 percent. The time trend for those individuals categorized as obese is similar and is depicted at the top of

Figure 1. Body Mass Index Categories



each bar indicating that women have higher rates of obesity than men. These trends in body mass are the sources of the concern among policy makers given that being over weight has become the second largest underlying cause of premature deaths, second only to tobacco consumption.

In contrast to the common interpretation that the rising trend in body weight is a public health crisis, some health economists have looked at the trend differently. They have tried to understand why individuals might choose life-styles leading to higher body weight and to determine what economic factors may have caused the observed growth in BMI.

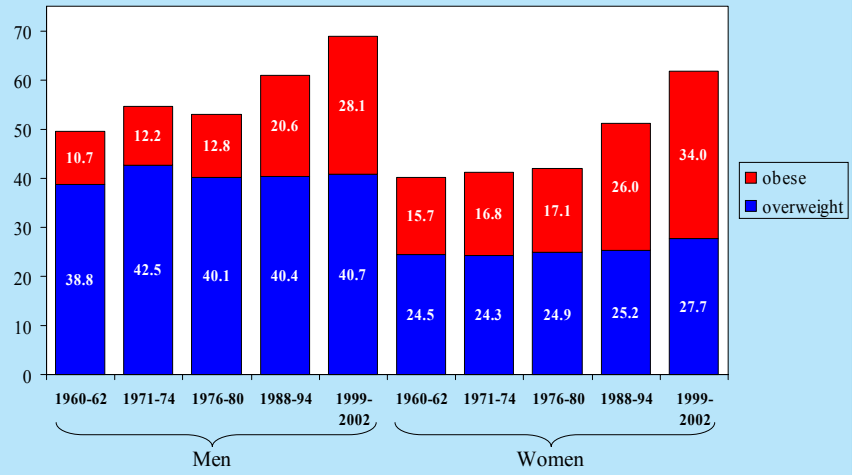
First, various economic models, which assume that individuals behave rationally, indicate that as incomes rise, individuals may choose to be overweight because gourmet meals have benefits beyond satisfying nutritional needs. From this point of view, people in higher income countries, though less healthy in terms of BMI, may certainly be happier overall than those in poorer economies. In other words, being overweight is, at the macro level at least, a sign of affluence.

Second, economic studies have emphasized technological progress in explaining the worldwide positive trend in BMI. Labor saving innovations in the home and at work have made home and market production less physically demanding. At the same time, other innovations such as television and the internet have made leisure time less physically active. Other technological changes like microwave ovens and dishwashers have lowered the labor costs of food consumption. From an individual's point of view, technological changes and price effects have made calorie expending more expensive and the cost of food consumption lower.

Is obesity a problem that warrants government intervention, even assuming that the intervention would improve the health of those whose choices would be limited? The classic reason for government intervention is that individuals, if left to their own devices, would engage in behavior that hurts those around them. Freedom, after all, means that you can make choices that may put you at risk while at the same time increase your sense of well-being. What can or should we do to protect individuals from themselves?

Market responses to increased obesity may result in changes in behavior. One of these responses is the threat of litigation. The prospect of a lawsuit may result in food vendors taking inefficient preventive measures, which increase cost and ultimately the price of food. Such price increases could reduce food consumption and obesity but would be welfare reducing as well. Given that body weight is largely the result of one's own utility-maximizing behavior, holding a third party responsible is problematic. In relation to this concern, the House of Representatives passed the Personal Responsibility in Food Consumption Act in 2004. The act was intended to shield food vendors from lawsuits based on weight gain. The bill failed to pass the Senate, but in late 2005, the so-called

Figure 2. Percent of Adult Population Overweight and Obese



Source: National Center for Health Statistics, *Health, United States, 2004.*

"cheeseburger bill" was reintroduced and passed again in the House while the Senate is currently considering a companion bill.

There are other types of market responses to the obesity that may make the problem self-limiting. The market responses are evident in terms of both caloric consumption and caloric expenditure. As consumers become more aware of the potential negative health consequences of obesity, the demand for high quality food – food that generates equal or greater satisfaction for the same or lower caloric intake – has already increased, and this trend is expected to continue in the future. The market is responding with increased variety in healthier foods and drinks. On the side of expending calories, new exercise equipment and methods are becoming more common. These market responses will tend to reduce the incidence of obesity. Within developed countries, there is some evidence that individuals with higher incomes are less likely to be overweight, while at the same time higher income countries have a higher incidence of excessive body weight. A logical explanation is that the wealthier individuals in a developed economy are more likely to lead relatively healthier, albeit, expensive life-styles.

Table 1, based on the National Health and Nutrition Examination Survey, reports the relationship between income and body mass. The table reports the average BMI for adult men and women in the United States by family income categories. The categories are defined by the ratio of family income to the poverty threshold which takes into account family composition and size. Among women, there is an inverse relationship between BMI and income. Women in the lowest income quartile have the highest average BMI, while women in the highest income quartile have the lowest average BMI. The average BMI among the low income women is significantly higher than the average for women in the highest quartile. In contrast, men in the lowest income group also has the lowest BMI. Their average BMI is statistically lower than the BMIs for the other two income classes among men. The lower BMI among lower income men may result from more physically demanding occupations. This mixed evidence indicates that the self-limiting effects noted above may be at work among women.

If higher body weight is caused by economic growth and technological innovations but is self-limiting, policy interventions are unnecessary. While there have been studies on the economic costs of obesity, estimates of costs it imposes on society are rare and controversial. Further, whatever the current size of any actual external costs from obesity, market responses can be expected to alleviate these costs.

Given the prevalence of obesity among some low income individuals in the United States, policy makers should carefully reconsider targeted subsidies such as in-kind food transfers (food stamps) and exemption of state sales taxes on raw or lightly-processed food. Such poverty relief policies made sense when low-income households were characterized by under-consumption of calories but may well have exacerbated the obesity problem. A first step might be to make poverty-relief policies less distortionary by replacing food stamps with cash transfers and replacing the exemption of state sales taxes on food with a negative income tax.

Table 1. Average Body Mass Index for Adults in the United States, 2003 to 2004, by Family Income Categories

Family Income Category*	Women	Men
Lower 25%	29.0	27.1
25% to 75%	28.2	28.6
Upper 25%	27.3	28.4
Overall	28.2	28.2

Source: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2003-2004. Family income categories are based on the ratio of family income to the poverty threshold.