

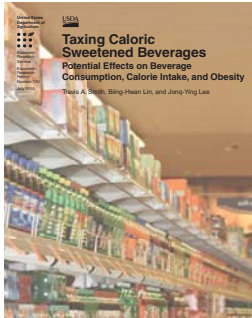


ERS *Report Summary*

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Taxing Caloric Sweetened Beverages: Potential Effects on Beverage Consumption, Calorie Intake, and Obesity

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The prevalence of obesity among the U.S. population has increased markedly over the past three decades. Latest figures indicate that two-thirds of adults are either overweight or obese, and growing numbers of children are overweight as well. Associations between obesity and certain dietary trends, such as eating away from home and drinking beverages sweetened with sugar and/or high-fructose and other corn syrups (e.g., sodas, fruit drinks, sports and energy drinks, and powdered mixes) have received increasing attention.

What Is the Issue?

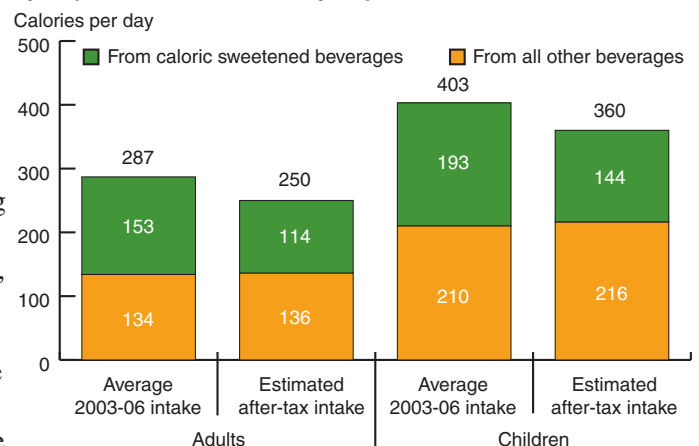
According to 1999-2004 National Health and Nutrition Examination Survey (NHANES) data on food intake, the average American consumed 22.5 teaspoons of added sugar per day, with almost half attributed to sodas and fruit drinks. Under a 2,400-calorie diet conforming to the 2005 *Dietary Guidelines for Americans*, 22.5 teaspoons of added sugars nearly exhausts the discretionary calorie allowance. High U.S. obesity rates have prompted the Institute of Medicine of the National Academies of Sciences and some State and local Government officials to suggest a tax on caloric sweetened beverages. This study examines the potential effects of such a tax on total beverage consumption, calorie intake, and the prevalence of overweight and obesity among Americans.

What Did the Study Find?

This study analyzed the effects of a hypothetical tax on caloric sweetened sodas, fruit drinks, sports and energy drinks, and powdered mixes. The study found that consumers facing a higher price induced by a tax would react by adjusting their choices among alternative beverages, such as diet drinks, bottled water, juice, coffee/tea, or milk. Results suggest that:

- A tax-induced 20-percent increase in the price of caloric sweetened beverages could reduce net calorie intake from all beverages by 37

A 20-percent price increase from a tax on caloric sweetened beverages is estimated to reduce total calorie intake from beverages by 13 percent for adults and by 11 percent for children



Source: Economic Research Service calculations based on the National Health and Examination Survey data, 2003-06.

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calories per day for the average adult. The effects for children were estimated to be larger—an average reduction of 43 calories per day.

- By assuming that 1 pound of body fat has about 3,500 calories, and assuming all else remains equal, the daily calorie reductions would translate into an average reduction of 3.8 pounds over a year for adults and 4.5 pounds over a year for children.
- The weight loss induced by the tax could reduce the overweight prevalence among adults from 66.9 to 62.4 percent and the prevalence of obesity from 33.4 to 30.4 percent. For children, the at-risk-of-overweight prevalence would decline from 32.2 to 27.0 percent and the overweight prevalence would decline from 16.6 to 13.7 percent.

These reductions in the proportion of overweight and obese Americans are the result of two factors:

1. A large group of individuals are overweight or obese by only a few pounds, and a small reduction in calorie intake could change their weight classification; and
2. Many overweight and obese Americans consume large amounts of caloric sweetened beverages. For example, 10.6 percent of overweight adults consumed more than 450 calories per day from caloric sweetened beverages—nearly three times the average amount of 152 calories consumed by adults.

A tax on caloric sweetened beverages would affect all those who consume them—overweight, obese, and healthy weight individuals. Our estimates of changes in overweight and obesity rates do not capture potential improvements in weight status among those with healthier weights. There are many individuals, however, who are a few pounds shy of the Body Mass Index (BMI) cutoffs for overweight and obese. The tax-induced reduction in calorie intake could not only reduce obesity rates but also help keep certain borderline individuals from joining the ranks of the obese or overweight.

The estimated impact of these measures would depend on, among other factors, the size and type of tax and how the tax is reflected in the prices consumers pay. Manufacturers' and retailers' responses to the tax would affect how much of the tax is passed on to consumers. Differences in the at-home and away-from-home food markets are also likely to influence how a tax would affect prices consumers pay (e.g., bottled and canned soda purchases in grocery stores versus free beverage refills from soda fountains in fast food restaurants).

How Was the Study Conducted?

Two national datasets were used in this analysis: (1) actual consumer grocery purchases of beverages from 1998-2007 Nielsen Homescan panels, and (2) individual daily beverage intake data with corresponding measured height and weight from the 2003-06 National Health and Nutrition Examination Survey (NHANES). Beverages in each dataset were grouped into eight categories based on calorie content (caloric sweetened beverages, diet drinks, skim milk, low-fat milk, whole milk, 100 percent fruit and vegetable juice, coffee/tea, and bottled water). Using the purchase data, a demand system was specified to estimate how beverage-purchasing decisions would change as a result of a price increase for caloric sweetened beverages. Price elasticity estimates were then applied to individual beverage intake data reported in NHANES to estimate changes in caloric intake for each beverage category in response to a tax-induced 20-percent increase in the price of caloric sweetened beverages. By calculating changes in calorie consumption among all beverages and assuming that 1 pound of body fat has about 3,500 calories, we estimated the change in each NHANES respondent's body weight to calculate after-tax overweight and obesity prevalence in the U.S. population.