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The Use of Soda Taxes for Obesity Prevention

According to the National Health and Nutrition Examination Survey (NHANES), more than two-thirds of American adults are overweight¹ and more than one-third are obese.² The average body mass index (BMI) for American adults has increased from approximately 25 to 28 between 1960 and 2002. Similar changes have been observed in children and adolescents. This dramatic surge in obesity has resulted in rising rates of cardiovascular disease, diabetes, and other illnesses associated with diet.³ It is estimated that nine percent of medical expenses in the United States (US) result from obesity-related illnesses. Half of these are paid by public funds.⁴ To offset these costs and discourage residents from drinking sugar-sweetened beverages (SSBs), several states have implemented “soda taxes” on artificially sweetened soda, sports drinks, and fruit drinks. Approximately 34 states apply a sales tax to soft drinks (either by directly taxing soft drinks or by excluding it from the sales tax exemption granted to food), while other states apply an excise tax to SSBs.^{5, 6}

The Role of Soda in Weight Gains

The consumption of sugar-

consumption of soft drinks increased nearly 500% over the past 50 years.⁸ As sugar-sweetened beverage consumption has increased, it has replaced other beverages, particularly milk and fruit juice, in the diet of children and adolescents, leading to an increase in caloric consumption.⁹ According to one study, approximately 67% of sugar-sweetened beverages consumed are soda.¹⁰ Soda consumption has been hypothesized as one of the leading causes of the rapid growth rate of obesity in the US.¹¹ Not only does soda contribute to caloric intake but it and other foods rich in free sugars have been shown to reduce appetite control.^{12,13} Additionally the increase in soda consumption has paralleled the rise of obesity.¹⁴ There is a strong correlation between increased consumption of sugar-sweetened beverages, an above average BMI, total daily caloric intake, and lowered nutrient intake.^{15,16} There are several biological and metabolic reasons for this.

Health Effects

Unlike sugar-sweetened foods, sugar-sweetened beverages do not seem to provide adequate satiety, which prevents individuals from compensating for the calories ingested from SSBs during later meals.¹⁷ This dynamic leads to a higher total caloric intake overall, by an average of 172 calories in children and 175 calories in adults.

contributes to insulin resistance and can lead to diabetes.²⁰ It is also believed that the routine consumption of sugar-sweetened beverages may lead consumers to develop a preference foC3uoC3uoC3uoC3

came from SSBs at 37%.²⁷ Researchers also found that consumption from liquid calories in beverages "increased in parallel to the obesity epidemic."

For example, in Alabama, soda is taxed when purchased both in grocery stores and from vending machines, and the manufacturer of soda, based on the capacity of the individual bottling machine, is also taxed.⁴⁴ Arkansas places a privilege tax per volume of soda or soda syrup on manufacturers, wholesalers, distributors, and retailers.

States have encountered challenges in implementing their soda taxes as it directly conflicts with federal programs.⁴⁵ Currently the federal Supplemental Nutrition Assistance Program (or SNAP, formerly known as the Food Stamp Program) mandates that states must allow any food bought with SNAP funds to be exempt from state sales tax. As the federal government includes soda in its definition of food, it is impossible for states to have widespread implementation of the soda tax. As a result, the soda tax would face limited impact in consumption reduction for low-income families, often the most heavily affected by obesity. However, in cities such as Chicago, taxes are enacted against specific foods in a similar manner to state excise taxes. On a broader level, municipalities can and do implement broad sales taxes. However, since the taxes are not enacted on the s

whereas the sales tax would only be enacted at the cash register. This means that, under a

taxing SSBs at a significantly high rate would reduce weight gain and obesity in Vermont resulting in healthier Vermonters, a more productive work force, and lower health care costs for the state (see other VLRS obesity reports at www.uvm.edu/~vlrs).

Some research has attempted to establish a *direct* link between taxing SSBs and obesity reduction. Such research is not necessary given the other linkages that have been established in the research (between SSBs and obesity and between taxation and consumption). It is also difficult to accurately do given that the causes of obesity are multiple and complex.⁵⁵ Trying to assess the impact of one change in the environment of factors that contribute to obesity will result in statistics that indicate, at best, only a fraction of a decline in obesity, especially if the statistical analyses do not model potential interaction effects. Nonetheless, some research has been published that attempts to measure a direct link between taxes on SSBs and obesity (and finds small, albeit significant effects) so we summarize the findings below.

According to one study, existing soda taxes have failed to result in substantial changes in obesity rates throughout the population.⁵⁶ This is largely thought to be because the tax rates are too low.^{57, 58} However, as the price elasticity of caloric sweetened beverages has been calculated to be -1.26, meaning that demand for such beverages is elastic, there is promise that higher tax rates might be effective.⁵⁹ For instance, estimates done on the original 18% soda tax rate proposed by New York's Executive Budget show that population BMI would decrease by 0.23 units, or a 20% decrease in excess BMI gain.⁶⁰ Maine has recently increased its soda tax rate by 20 percentage points. According to Fletcher et al., this increase could lead to a BMI reduction of 0.06.⁶¹ Studies of the effects of soda taxes on obesity rates and weight loss in children, adolescents, and adults have revealed that current levels of taxation result in significant improvements only within limited segments of the population, segments that are affected by the regressive nature of the tax.^{62, 63} Soda taxes currently being implemented within the US have a small, yet statistically significant, effect on weight loss among minorities, low-income families, those who watch a large amount of television, and those who have an especially high BMI.⁶⁴ Certain subgroups of children, who are more at risk for obesity, had more significant changes in consumption in reaction to increased soda taxes. These subgroups

⁵⁵ This is reflected in the low R² in statistical models in this research, indicating that the statistical models that were

include children who are already overweight, live in low-income households, and are African American.⁶⁵

According to another article, “[s]tate soft drink taxes have a statistically significant impact on behavior and weight; however, the magnitude of the effect is small. An increase in the state soft drink tax rate of 1 percentage point leads to a decrease in BMI of 0.0003 points and a decrea

excise tax, the tax which would in theory be most effective to curb consumption, may simply be swallowed by the industry and therefore not lead to a price change or may be dispersed over all foods, meaning that there is no added disadvantage of consuming soda.⁷³ Additionally, concerns have been raised that SSB taxes are regressive, placing a greater burden on low-income households.⁷⁴

State Revenues

A soda tax is most effective when the revenue generated from the tax is reinvested into social programs specifically earmarked to decrease consumption and promote public health.⁷⁵ However, solely basing the funding of these programs on the tax revenue generated may pose a problem. If successful, a reduction in soda consumption will contribute to steadily decreasing revenues from the soda tax as more people choose other products and others never enter the market.⁷⁶

Type of Tax

There are various considerations to be weighed with different types of taxes on beverages. When a sales tax is implemented, the tax is added on at the register—after the consumer has made the decision to purchase the soda. Also, a sales tax encourages people to search for cheaper alternatives or buy in bulk containers, which cost less per ounce, resulting in lower revenues for the state and a failure to discourage consumption.⁷⁷

Alternatively, an excise tax taxes the weight or volume of a good. The producer then incorporates the cost of the tax into the price of the good. This is passed on to consumers, who are more likely to recognize the increased price of the good on the shelf than at the register as in the case of a sales tax.⁷⁸ An excise tax levied on producers is easier to collect due to the smaller number of businesses that must comply with the tax. The experience with 'sin taxes' on cigarette and alcohol suggest that excise taxes can have a significant effect on consumption.⁷⁹

With cigarettes, data show that an increase in the tax leads to stockpiling before

from soda taxes.^{95, 96}

Compiled at the request of the Vermont Attorney General's Office by Professor Anthony Gierzynski, Lindsay Cyr, Martha Jean Moreo, John Sadek, Benjamin Lidofsky, and Ryan Kendall Waingortin, and Kate Fournier on 10 August 2010.

Disclaimer: This report has been prepared by undergraduate students at the University of Vermont under the supervision of Professor Anthony Gierzynski. The material contained in the report does not reflect the official policy of the University of Vermont.

⁹⁵ Brownell et al., "The Public Health and Economic Benefits of Taxing Sugar-Sweetened Beverages."

⁹⁶ Brownell and Frieden, "Ounces of Prevention – The Public Policy Case for Taxes on Sugared Beverages."