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Should There Be a Soda Tax?

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Warren Buffet once told the media that his secret of staying young and healthy is to drink five cans of Coca-Cola every day.[1] Although everyone has their own secrets to longevity, Buffet's dietary choice is not embraced by the American Heart Association (AHA), which considers obesity and heart diseases caused by soda to be so devastating that it recommends taxing sugary drinks to reduce consumption.[2] Not surprisingly, a soda tax does not sit well with industry groups including the American Beverage Association (ABA), which adamantly opposes such taxes. This report reviews the controversies of taxing sugary drinks; describes recent global, state, and local experiences of developing and implementing soda taxes; and provides practical policy considerations.[3]

HEALTH STATISTICS AND SODA CONSUMPTION TRENDS

An Organisation for Economic Co-operation and Development (OECD) study shows that among 44 countries surveyed in 2015, the U.S. and Mexico have the highest obesity rates for people 15 years and older, at 38% and 30% respectively.[4] These statistics are projected to be 47% in the U.S. and 39% in Mexico by 2030. The study also points out an alarming trend for highly educated males in the U.S.: although women and less educated people have the highest rates of obesity, male obesity, especially among the highly educated, has been the most rapidly growing of all demographic groups.

Besides these disconcerting statistics, numerous studies link several common forms of noncommunicable diseases, including weight gain, obesity, type two diabetes, and heart disease, to the increased intake of sugary drinks.[5] Since the 1970s, successful marketing, lower prices, increased portion sizes, and greater availability have contributed to increased consumption of these beverages.[6] Multiple publications indicate sugary drinks are the largest single source of added sugars in today's diet, accounting for half of Americans' added sugar consumption. This leads researchers to believe the association of sugary drink consumption and weight gain is stronger than for any other types of food or beverage,[7] which provides the foundation for soda taxes.

SALES TAX AND "VINTAGE" SODA TAXES

Before reviewing the current soda tax debate, it is important to remember that soda is subject to sales tax at general or reduced rates in 35 states.[8] The soda tax debate over the last decade centers on imposing excise taxes on sugary drinks. Broadly speaking, excise taxes single out a particular good or activity to either generate revenue or deter consumption through increased prices. Common excise tax examples include levies on cigarettes, alcoholic beverages, soda, gas, lottery, and amusement activities. Due to the nature of such activities, supporters of excise taxes on cigarettes, alcoholic beverages, and soda often call them "sin taxes." Because the ultimate goal is to improve health outcomes, recent soda taxes usually prioritize consumption reduction over revenue generation.

Besides the narrowly targeted tax base, excise tax on sugary drinks differs from sales tax in several major ways. First, although retailers collect and remit sales

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tax, customers typically bear the financial burden of it. In contrast, although excise tax is usually imposed on distributors of sugary beverages, who can pass the price increase on to retailers and consumers, they may choose to absorb part of it. As a result, consumers may not bear the full burden of the tax. In addition, sales tax on soda is based on the retail price of a drink, whereas excise tax is usually based on the volume of sugar added or the size of a soda container.

A few states, including Alabama, Arkansas, Tennessee, Virginia, Washington, and West Virginia, have "vintage" soda taxes that were established decades ago. These states impose soda taxes in the form of licensing charges, gross-receipts taxes, or excise taxes. The vintage soda taxes in Alabama (licensing) and Tennessee (gross receipts tax) are levies on the privilege of working or conducting business in the state, whereas other vintage soda taxes focus on revenue collection and financing specific public programs instead of curbing consumption and changing consumer behaviors. For example, Arkansas dedicates the tax revenue to fund its Medicaid program, Virginia funds litter control and recycling programs, and West Virginia uses the revenue for the medical school at West Virginia University.[9]

TODAY'S SODA TAXES

There is no federal soda tax in the U.S., and based on state experiences and recent polls, it is highly unlikely there will be one in the near future. Many recently proposed and implemented soda taxes are at the local and municipality levels, with seven cities currently having soda taxes.[10] In 2019, California, Connecticut, Massachusetts, New York, Rhode Island, and Vermont initiated soda tax proposals but none passed.[11] Globally, approximately 40 countries—including Mexico, France, Ireland, Hungary, Belgium, Chile, Finland, and the U.K.—have nationwide soda taxes, and this number is likely to increase.[12]

Berkeley, California, and Philadelphia, Pennsylvania, have the most frequently discussed soda tax cases. Berkeley's soda tax, effective since January 2015, is the first nonvintage soda tax in recent years, and it received 76% approval during the voting process.[13] Although multiple studies show that the tax led to lower soda consumption, soft drink producers and the ABA have been lobbying state and city lawmakers to prevent the tax from expanding. As a result, the state of California passed a 12-year ban on a statewide soda tax in June 2018.[14] In February 2019, several lawmakers introduced a five-bill package, including imposing statewide soda taxes, displaying health-related warning signs, and prohibiting the sale of sugar-sweetened beverages exceeding 16 ounces, in an effort to overturn the ban.[15] The bills did not advance; however, the legislators signaled they would reintroduce the measures next year.[16]

The Philadelphia City Council passed the soda tax in June 2016 by a 13-4 vote. Several months later, a coalition of business owners, retailers, and industry groups led by the ABA filed a lawsuit to repeal the tax. After the Pennsylvania Commonwealth Court upheld it in June 2017, the coalition appealed to the Pennsylvania Supreme Court, claiming the soda tax violates the Sterling Act, a state statute that prevents the local government from imposing levies on goods already taxed by the state.[17] In July 2018, the Pennsylvania Supreme Court ruled that the tax is legal and does not duplicate the state's sales tax because consumers bear the burden of the sales tax, while the soda tax is levied on distributors.[18]

Besides the prolonged legal fight, a major drawback of Philadelphia's soda tax is cross-shopping, which is when consumers travel to nearby cities without a soda tax and make purchases there. One study documented a tax-related reduction in soda consumption of 46% in and around the city; however, after considering the effect of cross-shopping within a six-mile radius, soda consumption was only reduced by 22%.[19] In addition, Philadelphia's soda tax covers any beverage with added sweeteners, including diet soda and fruit juices with a moderate amount of sugar. This generated discontent, as people argued that mildly sweetened beverages might not be as harmful to health as highly sweetened beverages. Finally, the tax only applies to liquids and does not cover powered drink mixes, which provide people with another way to avoid the tax but still consume the same amount of sugar.

The largest setback for soda tax in recent years probably took place in Cook County, Illinois. A soda tax went into effect in August 2017 and was repealed in December 2017, lasting only four months. The major reasons for this failure include its disproportional impact on low-income households, inability to shift people's consumption toward healthier products, and limited revenue potential.

ARGUMENTS AGAINST SODA TAX

Soda tax opponents usually cite **regressivity** as the major reason for their disapproval. Regressive taxes take a larger percentage of income from low-income taxpayers than from high-income taxpayers.[20] Because lower income households spend a higher portion of their income on soda, they pay disproportionally more taxes. Soda tax also hurts low- to moderate-income families by reducing employment. For example, several ABA publications argue Philadelphia's soda tax caused 1,200 job losses in the soda industry; tax policy analysts have made similar observations.[21]

Supporters counter that a more comprehensive consideration would paint a different picture:[22] first, the negative health outcomes such as obesity and diabetes are themselves regressive, meaning that lower income households have higher rates of soda-related health issues. A "corrective" soda tax that changes people's behaviors may therefore provide greater benefits to the poor than the rich.

In addition, because lower income households suffer more from obesity and diabetes, they spend more money on related medical care than their wealthier counterparts. As such, the financial costs of treating these conditions are regressive. Third, revenue raised by soda taxes can be used on projects that benefit lower income households, which can alleviate tax regressivity concerns. For example, San Francisco and Philadelphia used soda tax revenue on health promotion programs in low-income communities, parks and recreation development, improved drinking water access, pre-kindergarten education, and chronic disease prevention. Finally, if lower income households respond to tax-induced higher prices by reducing consumption more than higher income households do, they can avoid a large portion of the tax burden.

Opponents also argue that the soda tax is **not an effective or appropriate tool**. There are several layers to this argument. First, they believe taxes primarily exist to raise revenue, and governments should not use tax policies to handle complicated social issues, such as using tax-induced soda price increases to change people's consumption patterns.[23] Even if soda tax generates reasonable amounts of revenue, it is not a reliable source. Instead, well-designed income, sales, and property taxes should be the primary sources to fund core government services because they are predictable. Excise tax, on the other hand, is generally not a stable source of revenue because the tax base is narrow and people's consumption patterns may fluctuate.

Supporters of soda tax reference the "sin tax" argument and indicate that because we have to raise revenue for government functions, it is better to tax "bads" than "goods." Former Secretary of the Treasury Lawrence Summers called the soda tax "as close to free-lunch, win-win policy as economists have found."[24] It is also better to resort to preventive measures before facing dire consequences; for example, it is less painful for consumers to cut consumption of cigarettes or soda today than to experience negative health outcomes in the future.

The **effectiveness** of soda tax in reducing people's sugar consumption or improving health is also subject to debate. From a tax design perspective, most soda taxes are levied at the distributor level and are applicable to a subset of products within a larger category. The first impairment to soda tax's effectiveness is that distributors may or may not fully pass the tax on to retailers, which means that consumers may or may

Soda tax opponents cite regressivity as the major reason for their disapproval. They also argue the tax is not effective because distributors may not fully pass it on to consumers, who may engage in cross-shopping.

The issue with grouping tobacco, alcohol, and soda together and labeling them as equally detrimental to health lies in the lack of convincing scientific evidence. Unlike tobacco, sugary drinks and even alcohol are safe if consumed in moderation.

not fully experience the price increase. Empirical studies show a wide range of tax pass-through rates, ranging from moderate (40%), high (75%), to full (100%).[25]

Even if distributors fully pass on the tax, consumers may engage in tax avoidance activities, such as cross-shopping or purchasing other untaxed beverages. Some studies show that when people switch away from taxed products, they typically substitute them with equally unhealthy items. As a result, the total sugar intake or calorie consumption does not change, hampering the effectiveness of the soda tax.

Finally, opponents indicate that higher soda taxes do not always reduce obesity rates. The end result can be a no-win situation: people do not buy less soda, sugar intake remains the same, obesity stays high, and workers and consumers are hurt.[27]

Supporters argue that existing soda taxes are not effective because they are not well designed, and most importantly, they are too low. If the taxes are not high enough, they will hurt low-income households by increasing the cost of soda, but not enough to prevent them from purchasing it. A recent study that investigated the optimal federal sugary drink tax recommends a higher tax. The researchers conclude a federal tax of 1 to 2.1 cents per ounce of sugar would generate $2.4 billion to $7 billion in revenue annually, a level higher than most existing taxes.[28] In addition, the study states that a federal- or state-level soda tax would be more effective than a city-level tax because it would cover a larger population and reduce the chance of cross-shopping.

A World Health Organization (WHO) study supports higher soda taxes: it states that the consumption of sugar is associated with obesity, and taxing sugar reduces consumption.[29] WHO recommends a sugary beverage tax at 20% of retail prices that should be adjusted regularly to account for income growth and inflation to remain effective.[30]

ARGUMENTS SUPPORTING SODA TAX

> *"Sugar, rum and tobacco are commodities which are nowhere necessaries of life, which are become objects of almost universal consumption, and which are therefore extremely proper subjects of taxation." (Adam Smith, The Wealth of Nations, 1776)*

Soda tax advocates often reference Adam Smith's insight for support.[31] His viewpoint was indeed validated two years after the Constitution was ratified: the first U.S. excise tax was imposed on whiskey, specifically introduced to reduce consumption.[32] More recently, cigarette taxes were widely adopted in the 1970s to reduce smoking, decrease tobacco-related diseases, and promote health awareness.[33] As a result, soda tax supporters see many parallels between soda taxes and cigarette taxes.

The problem with grouping tobacco, alcohol, and soda together and labeling them as equally detrimental to health lies in the lack of concrete and convincing scientific evidence. Many studies have documented the harmful effects of tobacco on human health, including secondhand smoke. However, unlike tobacco, sugary drinks and even alcohol are safe if consumed in moderation. Politically, the case for alcohol-related taxes is already harder to make than for cigarette taxes, because drinking is culturally more acceptable than smoking.[34] Soda taxes will face an even harder sell than alcohol taxes, because sugar usually projects a joyful, celebratory image; many consequences are also not immediately visible—for instance, reckless drunk drivers may cause casualties, but people who overconsume soda will not show symptoms until years later.

Indeed, supporters of the soda tax often mention **externality**, which is when people may negatively affect others when they consume certain things. Because these consumers do not absorb the full cost burden for their behavior, they can independently decide to smoke and drink more than is best for society.[35] As such, an excise tax is justified to make consumers bear the full costs of their behavior. In the case of soda, heavy soda drinkers impose costs on everyone, including lighter soda drinkers, in the form of higher health care expenses. Diabetes treatment alone costs an estimated $245 billion per year in the U.S., and everyone pays higher health insurance premiums as a result.[36]

From a purely financial perspective, the magnitude of externality across different excise tax targets may vary. Some economists argue that because smokers die earlier, the financial savings from premature mortality in terms of lower nursing home costs and Social Security exceed the higher medical and life insurance costs.[37] Similarly, although there has been limited evidence for how much soda drinkers cost taxpayers, it may not be as much as one may expect.

A more moderate view of externality goes beyond the notion that consumers of "sin products," including soda, are possibly selfish or ignorant about the health care costs imposed on others. Instead, the sin products provide short-term benefits and long-term costs, and people are typically unable to see past the instant gratification of overconsuming soda, thereby ignoring the long-term negative health outcomes. In other words, due to the lack of foresight, consumers can underestimate the long-term harmful effects of sugar, and they often also overestimate their ability to quit or reduce consumption once they start. Taxing soda essentially presents consumers with a more concrete way to assess the costs and benefits of consuming sugary beverages.[38]

Emerging behavioral economics literature follows this thinking and explores externality from a different angle. These studies claim that people who overconsume soda are simply self-deficient; issues such as self-control problems, inattention, and incorrect beliefs lead to their overconsumption. Furthermore, certain groups are more vulnerable to these behavioral deficiencies. For instance, several studies have found that households with the lowest nutrition knowledge purchase more than twice as many sugary beverages as households with the highest knowledge. In addition, low-income (less than $10,000) households not only have low nutrition knowledge, but they also admit to drinking soda more often than they should.[39] A study estimated that if all individuals had perfect self-control and the same knowledge as nutritionists, the U.S. would consume 31%–37% less soda.

Despite different views about the causes of externality, behavioral economists also recommended soda taxes to correct the overconsumption. In addition, they prescribe several other intervention methodologies. First, because lower income, less educated individuals tend to have lower nutrition knowledge, promoting awareness of proper dietary behavior could yield promising results.[40] For instance, public policies can utilize mass media campaigns to educate people regarding the health impacts of added sugars. In New York City, where certain chain restaurants are required to post calorie information on menus, consumers who saw the calorie information purchased fewer sugary drinks than consumers who did not see the calorie counts.[41] In 2010, the Affordable Care Act (ACA) also began requiring certain chain restaurants to post calorie information on their menus. Finally, a cap on sugary drink portion sizes may address the self-control issues of heavy soda drinkers, because larger portion sizes encourage increased consumption. For instance, former New York City mayor Michael Bloomberg advocated a ban prohibiting the sale of sugary drinks larger than 16 ounces in food service establishments in the city. However, this rule was challenged and eventually overturned in 2014.

Overall, supporters recognize that soda taxes are unpopular and have flaws. However, they claim that modest measures such as education campaigns and promoting better nutrition do not generate results. Therefore, drastic measures such as soda taxes are necessary to curb consumption.[42]

Supporters of the soda tax recognize that it has flaws, but modest measures do not generate results.

Three major evidence-based issues challenge the effectiveness of soda taxes: lack of sufficient evidence, no clearly demonstrated connection between soda tax and improved health outcomes, and the credibility of soda tax analyses.

PROVING THE EFFECTIVENESS OF SODA TAX

As discussed, a major challenge for soda tax proponents is to prove the effectiveness of the tax. There are three major evidence-based issues: lack of sufficient evidence, connection, and credibility.

With regard to the evidence for soda taxes, an effort spearheaded by former New York City mayor Bloomberg and former Treasury Secretary Summers reported taxes on tobacco, alcohol, and sugary drinks are essential to combat noncommunicable diseases.[43] Their ongoing initiative recognizes that tobacco has the largest and best-documented health risk, and it leads to about 8 million deaths per year globally. Next in line is alcohol, which causes 3 million deaths. Finally, obesity and diabetes cause 6 million deaths per year globally, and the consumption of sugary beverages is a contributing factor to both conditions.

Their study finds that higher tobacco and alcohol prices reduce consumption, save lives, and generate tax revenue. However, more evidence is still needed to determine if soda taxes generate these positive outcomes. As a result, the study concludes that tax on tobacco can do more to reduce premature deaths than any other single health policy, and increasing taxes on alcohol also significantly reduces alcohol-related mortality. On the other hand, taxes on sugary drinks are described as "prudent," as they incentivize healthier diets and reduce noncommunicable diseases.

Another evidence-based issue is to demonstrate the connection between soda tax and improved health outcomes. Some opponents may accept the notion that obesity, diabetes, and heart disease are critical health problems, but they may disagree that sugary drinks contribute to such conditions. Even if they agree that soda is bad for health, they may challenge whether the soda tax reduces sugary drinks consumption. Finally, certain opponents also do not believe soda tax generates lower noncommunicable diseases or better health results.[44]

Earlier this year, several researchers took a holistic approach to quantify two conflicting forces of soda taxes. The regressivity concerns call for lower soda taxes because lower income households pay more taxes. In contrast, the concentration of negative health outcomes in lower income households calls for higher soda taxes because the same households benefit more from both drinking less soda and the recycled tax revenue used in their communities.[45] The researchers conclude that soda taxes generate "net benefits" to society after considering health costs, better health outcomes, people's enjoyment of soda, and tax revenue, among other factors. Although the optimal soda tax rate might be debatable, it is not zero.[46]

The final issue is credibility. For the public, it is hard to judge the quality of soda tax studies based on technical methods. In addition, industry groups and advocacy organizations have retained qualified experts to conduct studies or surveys, and one can typically anticipate a study's conclusion based on the sponsors' positions. The consumers eventually gets "research report fatigue," and the only message they receive is that there is not a set scientific conclusion about soda tax.

For instance, several studies that investigated the short-term effectiveness of Mexico's soda tax had different conclusions: some researchers found promising results, where the soda consumption was lower, especially among low-income groups and households with children.[47] However, ConMexico, an industry group, commissioned a study prepared by the Mexico Institute of Technology, which demonstrated soda tax has minimal effects on calories consumed and no effect on BMI.[48]

In the U.S., a 2017 study commissioned by the ABA and prepared by Oxford Economics concluded that Philadelphia's soda tax does not substantially improve health outcomes. The study states that the tax's biggest impacts are the loss of jobs and consumers substituting beverages from liquid form to nontaxed drink mixes.[49] The ABA also has a dedicated webpage about soda tax to document its sponsored research, viewpoints, and relevant statistics.[50] On the other hand, many studies summarized by the American Academy of Pediatrics and the American Heart Association called for soda taxes to reduce consumption. The organizations also commissioned economic studies of their own.[51] For example, an Urban Institute study commissioned by the American Heart Association concluded that if policymakers adopt a soda tax, a single-tier tax based on sugar content instead of soda volume is the most effective tax structure in reducing sugar consumption.[52] Such taxes that target high-sugar drinks provide the greatest reduction in sugar consumption relative to the economic burdens placed on consumers.

PRODUCER RESPONSE TOWARD HEALTHIER CHOICES

Amid their strong lobbying efforts and marketing campaigns against soda taxes, beverage producers have responded to their mounting pressures and consumers' changing preferences. Gradually, producers have been reducing the sugar content in their existing products, releasing new products with lower sugar content, and more subtly, reducing bottle sizes while maintaining their profit margins.[53]

Although regular soda still accounts for over half of the beverage industry's revenue, producers have been focusing on alternatives including sports and energy drinks, sparking water, ready-to-drink tea, and artisanal products such as craft sodas, products made with all-natural ingredients, and products with added minerals, vitamins, or protein.[54]

CONCLUSION

Recent nationwide polls show that Americans are divided about soda tax.[55] Overall, people tend to be more supportive of calorie labeling and removing sugary drinks from schools, but less so for a general soda tax.[56]

For soda tax advocates, the evidence is still growing. It is important to gather enough evidence to inform meaningful public policy debates, as well as ensure that the evidence clearly shows that soda taxes can reduce consumption and improve health outcomes.

As the evidence is being gathered, improving food and beverage labeling information and promoting nutrition knowledge are the best courses for the present. Both the OECD and WHO encourage promoting healthy diets by improving health literacy and empowering consumers. The improved labeling could range from a more radical form of mandatory health impact disclosures similar to the warning labels on tobacco products, or a more moderate form like encouraging all restaurants to provide calorie information. Marketing campaigns may be too slow to reverse the soaring rates of chronic diseases; however, such educational efforts are essential to change people's views of sugary beverages.

A thorny issue is that consumers' acceptance of a soda tax may depend on whether soda is perceived as a necessity or if it is viewed more like cigarettes, which are nonessential and harmful to one's health. In addition, although it is important to correct tax-induced regressivity by recycling the revenue and using it in health promotion and community-based programs, it is important to bear in mind that the most important objective of soda tax is to change consumer behaviors. In order to do so, the tax needs to be targeted, well designed, and high enough to generate the desired results.

Soda tax is not a panacea. It is certainly true that a soda tax alone will not solve the multibillion-dollar obesity epidemic. In fact, no single public health intervention can solve today's obesity problem at its current scale. Fiscal policies such as soda tax remain a feasible yet controversial option for the foreseeable future.

For soda tax advocates, it is important to gather evidence that clearly shows soda taxes can reduce consumption and improve health outcomes. Improving food and beverage labeling information and promoting nutrition knowledge are the best courses for the present.

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