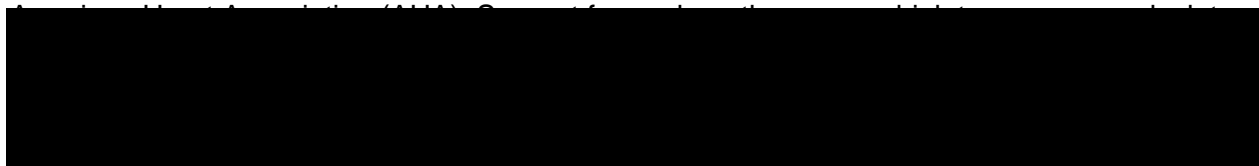


Distribution of Sugar Content in Sugary Drink Purchases in the U.S.: Implications for Tiered Taxation

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INTRODUCTION

Sugary drinks (i.e., beverages with added nutritive sweeteners) are among the leading sources of empty calories for both children and adults.¹ They provide almost half of all added sugars consumed in the American diet, which makes them a rational target for strategies to reduce excessive sugar intake and improve dietary and health outcomes.² Less energy-dense alternatives to sugary beverages for hydration include tap water or non-caloric beverages, while more nutrient-dense options might include milk or 100% fruit juice. The negative health effects of sugary drink consumption have been extensively documented. In a variety of observational studies and randomized controlled trials, excessive consumption of sugary drinks has been linked to weight gain, increased risk of Type 2 diabetes, cardiovascular disease, dental caries, and osteoporosis.³⁻⁶ At the same time, substituting sugary drinks with water or diet drinks (i.e., beverages with non-nutritive sweeteners) were shown to reduce body weight or slow weight gain.⁷⁻⁹

Average sugar intake has increased substantially over time and, despite a recent decline in sugary drink consumption, still exceeds dietary recommendations of limiting added sugars to less than 10% of daily calories.¹⁰⁻¹² For example, close to two thirds of youths aged 2-19 years consumed at least one sugary drink on a given day in 2011-14.¹³ While recent sales of soda and fruit drinks have been dropping at a rate of about 1-2% per year, sales of other sugary drinks have been increasing, with annual growth rates of 3-6% depending on the category.¹⁴ Looking for variety and novelty, consumers, and especially younger individuals, have shifted away from traditional beverages like soda towards relatively new products such as sports drinks, teas, and energy drinks. As a result, on a per capita basis, volume of sales of all sugary drinks are projected to stay flat or increase slightly over 2015-2020.¹⁴ In terms of sugar content, some of these beverages such as energy drinks are similar to sodas, while others such as teas and sports drinks usually have less sugar per serving than soda, but still relatively high amounts of added sugar compared to dietary recommendations.

Scientific evidence on the negative health effects of excessive sugary drink consumption and economic research on pricing effects on sales and consumption have inspired many public health experts to target sugary drinks for taxation. One argument for a sugary drink tax is that it will help reduce purchases of products associated w

equivalent to approximately a 20% price increase for major beverage categories (e.g., soda), if fully passed on to retail prices.²⁰ A price increase of this magnitude may reduce sugary drink sales by a margin large enough to result in meaningful public health benefits.

Berkeley, CA, introduced a penny-per-ounce excise tax on sugary drinks in 2015. Since then, Philadelphia, PA, Cook County, IL, Boulder, CO, Seattle, WA, and three other California cities - Oakland, Albany, and San Francisco - have adopted excise taxes on sugary drinks, with rates varying from one to two cents per fluid ounce and two jurisdictions (Philadelphia, PA, and Cook County, IL, included diet beverages in their tax bases).²¹ Early evaluation data from Mexico's nationwide 2014 beverage tax shows a significant decrease in sugary drink consumption, particularly among at-risk lower-income populations.²²⁻²³ Similar promising results are seen in Berkeley, CA,²⁴⁻²⁵ and multiple evaluations are ongoing in other locations to evaluate the effect of the sugary drink tax.

All excise beverage taxes to date have used a simple per volume design, imposing a tax of 1-2 cent(s) per fluid ounce in the U.S. and a peso per liter in Mexico. With this approach all beverage products are subject to the same specific tax rate, irrespective of their sugar content or energy density per serving. For example, lightly sweetened teas and sodas are taxed equally on a per ounce basis, even though added sugar and calories from sugar from a soda serving are usually considerably higher than from a serving of tea. While the volume-based approach has important advantages of simplicity in implementation, it does not provide incentives for consumers to switch to less-sweetened beverages or for the beverage industry to reformulate products and reduce added sugar content per serving.

Therefore, alternative tax designs have been proposed, including a tiered tax approach where sugary drinks are taxed at different rates depending on sugar content (i.e., grams of sugar per serving). The United Kingdom will apply a tiered SSB tax starting in 2018 using a three-tier system: beverages with less than 5g of sugar per 100 ml will not be taxed; beverages with 5–8g of sugar per 100ml will be taxed at a rate of 18p/liter; and, beverages with more than 8g sugar per 100ml will be taxed at the highest rate of 24p/liter. Beverages are categorized by sugar content for the tax rate determination, while the tax is levied on a volume basis, so producers might be encouraged to reduce both beverage size and added sugar content.²⁶

The tiered tax approach has drawn growing interest in the U.S., but questions remain about the

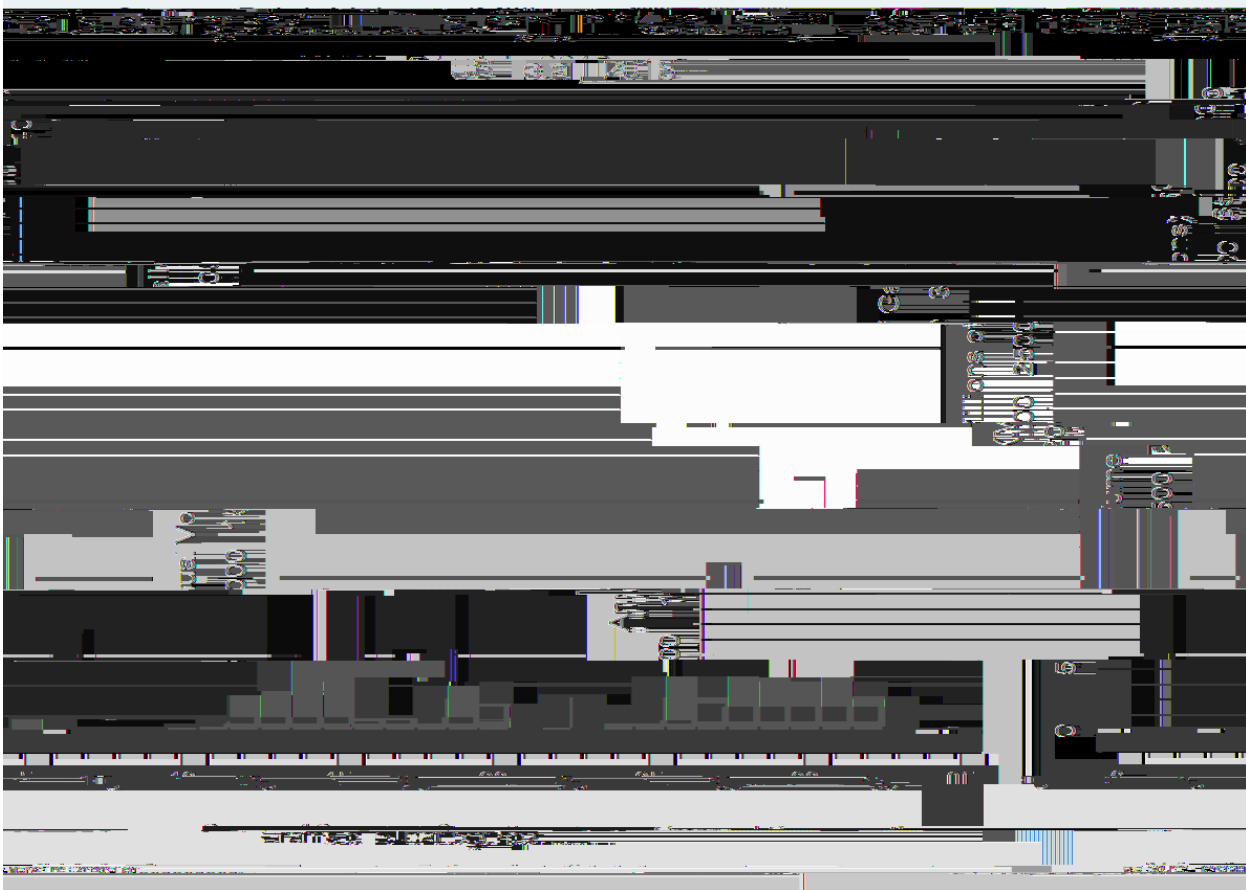
powders (e.g., fruit drink powder mixes) were not included. Beverage sales were assumed to represent beverage consumption.

Within each beverage category, brand-level data for 2016 on volume sold were provided for each product with added sugars in the top segment of the corresponding beverage market. Only products/brands with added nutritive sweeteners were included. The top segment coverage in volume sold varied from 78% for sweetened RTD teas to 91% for sodas to 98% for energy drinks. In addition to sales volume (in millions of gallons), we received

RESULTS

The analysis of the overall U.S. sugary drink market revealed a number of “spikes” in the sales volume distribution of beverages by sugar content per serving. **Figure 1** shows that by far the largest single portion of beverages sold by sugar content were for those with 26 grams of sugar per 8-ounce serving (almost 4 billion gallons), such as sodas and energy drinks. A distant second at just over 1.5 billion gallons in sales were beverages with 27 and 28 grams of sugar per 8-ounce serving, again made up mainly from sodas and energy drinks. The next largest concentration of sales by sugar content, also at the top end of the sugar spectrum, were for beverages with 31 grams of sugar per 8-ounce serving, again made up mostly of sodas. Overall, the vast majority of sugary drink sales were in the high-sugar per serving range of 26 to 31 grams per 8-ounce serving (i.e., 25 grams of sugar per 8-ounce serving). The next cluster of sales by sugar content was observed in the range around 14 grams of sugar per 8-ounce serving, which included mostly sports drinks, fruit drinks and RTD teas. A third but slightly smaller cluster in the distribution was observed around 19 grams of sugar per 8-ounce serving, including mostly RTD teas and fruit drinks. Sales were generally very low for sugary drinks with less than 10 grams of sugar per 8-ounce serving. The distribution of the per capita volume of sugary drink sales by sugar content is shown in Appendix A.

FIGURE 1



As shown in the figures in Appendix B, there were considerable differences in the volume distribution of sugary drink sales by sugar content across beverage categories. Almost the entire volume of sales for sodas and energy drinks

Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago, 2014.

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