Promoting Health Equity by Tiered Soda Tax Based on Sugar Content

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ABSTRACT

As an emerging public health measure, a soda excise tax is gaining popularity around the world and inciting controversies at the same time. This paper explores a more effective way to design soda taxes to promote health equity in the United States, compared to the volumetric soda taxes that have been adopted by several U.S. localities. Employing three criteria—efficiency, equity, and complexity—this paper comprehensively evaluates a tiered sugar content tax based on the U.K. model. The paper also addresses additional concerns about the tax, including paternalism, tax avoidance, under-shifting, federalism, regulatory capacity, and substitutes for sugar sweetened beverages (SSBs). As a result, this paper proposes a tiered soda tax based on sugar content, ideally levied at the state or federal level, as a tool to promote health equity in the United States.

I. INTRODUCTION

Non-communicable diseases (NCDs), including cardiovascular disease, cancer, diabetes, chronic respiratory disease, and other chronic diseases, have been identified as a top concern for both global health and equitable and sustainable development. United Nations high-level meetings in 2011, 2014, and 2018 called for urgent action to address NCDs as leading causes of death and disability, and as a major challenge for development.[1] A 2018 World Health Organization (WHO) report pointed out that NCDs are also becoming an issue of equity, disproportionately affecting not only low- and lower-middle-income countries, but also the poorest and most vulnerable populations in all countries, who are the most at risk and the least likely to have access to healthcare or treatment.[2]

Health inequities are socially determined. They are closely linked with economic, social, and environmental disadvantage, preventing poorer populations from moving

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1 Lancet NCD Poverty Comm'n, *About*, NCDI POVERTY NETWORK, http://www.ncdipoverty.org/about (last visited Dec. 17, 2020) [https://perma.cc/ZYC2-97EY].

2 WORLD HEALTH ORG. [WHO], SPENDING LESS: A STRATEGIC RESPONSE TO NONCOMMUNICABLE DISEASES 4 (2018), https://apps.who.int/iris/bitstream/handle/10665/272534/WHO-NMH-NVI-18.8-eng.pdf [https://perma.cc/6PC7-EUH5].

up in society and making the most of their potential.[3] "Health equity is the principle underlying a commitment to reduce, and ultimately eliminate, disparities in health and its determinants."[4] "Pursuing health equity means striving for the highest possible standard of health for all people and giving special attention to the needs of those at greatest risk of poor health based on social conditions."[5]

Tackling the increasingly severe problem of health inequity between high- and low-income communities in the United States requires reducing sugary beverage intake among low-income populations. Many NCDs, such as diabetes, cardiovascular disease, and cancer are attributable to obesity, which is on the rise as a global epidemic.[6] From 1999 to 2018, the prevalence of obesity in the United States increased from 30.5% to 42.4%.[7] The prevalence of severe obesity increased from 4.7% to 9.2%.[8] According to statistics from the Centers for Disease Control and Prevention (CDC), non-Hispanic Blacks (49.6%) had the highest age-adjusted prevalence of obesity followed by Hispanics (44.8%).[9]

To counter the spread of the obesity epidemic, WHO published guidelines on sugar intake in 2015.[10] In the United States, sugary beverages are the single largest source of added sugar in people's diets.[11] Certain racial and ethnic minority groups are more likely to experience poverty, and people experiencing poverty are disproportionately harmed by health inequities. Economists analyzed data for over 24,000 U.S. adults in two nationally representative samples from the National Longitudinal Surveys, which is a program of the U.S. Bureau of Labor Statistics, and found that the number of sugar-sweetened beverages consumed generally increases as income falls.[12]

All kinds of public health measures have been designed to tackle soda intake, including calorie labeling, posting calorie counts on menus, the portion cap rule proposal in NY (not implemented),[13] and mass media educational campaigns.

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3 *See* Paula Braveman, *What are Health Disparities and Health Equity? We Need to be Clear*, 129 PUB. HEALTH REPS. 5, 5–6 (2014).

4 *See id.*

5 *Social Determinants of Health*, WORLD HEALTH ORG., https://www.who.int/heallth-toopics/social-determinants-of-health#tab=tab3 (last visited Dec. 17, 2020) [https://perma.cc/CZT2-7WUE].

6 *See* Lauren Cedeno, *Global Implementation of Soda Taxes: Is There a Better Solution for Combatting Obesity?*, 45 BROOK. J. INT'L L. 329, 332–33 (2019).

7 *Adult Obesity Facts*, CTRS. FOR DISEASE CONTROL AND PREVENTION, https://www.cdc.gov/obesity/data/adult.html (last visited Dec. 17, 2020) [https://perma.cc/5SDH-ECUT].

8 *Id.*

9 *See id.*

10 *See* WHO, GUIDELINE: SUGARS INTAKE FOR ADULTS AND CHILDREN 7 (2015), https://www.who.int/publications/i/item/9789241549028 [https://perma.cc/2ZKV-ZS7T].

11 *See* Jason B. Binimow, Annotation, *Regulation of Sugar-Sweetened Beverages*, 38 A.L.R. Fed. 7th Art. 3 (2018).

12 *See* Patricia Smith & Jay L. Zagorsky, *Poorest Americans Drink a lot More Sugary Drinks than the Richest—Which is Why Soda Taxes Could Help Reduce Gaping Health Inequalities*, THE CONVERSATION (Jan. 17, 2020, 9:32 AM), https://theconversation.com/poorest-americans-drink-a-lot-more-sugary-drinks-than-the-richest-which-is-why-soda-taxes-could-help-reduce-gaping-health-inequalities-142345 [https://perma.cc/D8Z9-SS9T].

13 *See* Susan M. Kansagra, Maura O. Kennelly, Cathy A. Nonas, Christine J. Curtis, Gretchen Van Wye, Andrew Goodman & Thomas A. Farley, *Reducing Sugary Drink Consumption: New York City's Approach*, 4 AM. J. PUBLIC HEALTH e61, e61 (2015).

However, this paper focuses on soda taxes, also known as sugar-sweetened beverage taxes (SSB taxes), for four reasons. First, unlike measures such as the portion cap rule, which have not been effectuated, soda taxes have been adopted by many jurisdictions and thus can be studied based on relatively abundant empirical data. Second, compared to other widespread public health measures, such as mass media educational campaigns, which only target consumers, soda taxes have the advantage of directly affecting both the beverage industry and consumers. Soda taxes also have more public salience and have incited considerably more controversy. Third, some alternative policies, such as calorie labeling or calorie information disclosure, can lead to disparities in health benefits and exacerbate health inequities. Specifically, low literacy and low numeracy make it difficult to read and understand nutrition labels, and Black race and low income have been associated with low performance reading and comprehending nutrition labels.[14] Thus, labeling or disclosure policies tend to be more effective in high-income communities than in low-income, high-minority communities. By contrast, levying a soda tax can effectively address the problem of health inequity. As this paper will further explain, soda taxes affect low-income populations more than high-income populations. Finally, it is timely and important to discuss the design of soda taxes because more and more states and localities are either considering the adoption of soda taxes to reduce sugar intake or thinking of revising their soda tax policies to better address public health concerns of obesity and NCDs.[15]

This paper proposes a tiered soda tax based on sugar content as a tool to promote health equity in the United States. First, the paper introduces the history and current state of the law for soda/SSB taxes and introduces variations on the design of the tax. The paper acknowledges the effects of SSB taxes across different jurisdictions based on empirical statistics from different countries and localities. It then reasons that a tiered soda tax based on sugar content, taking the U.K. model as an example, is a more effective design compared to the volume-based soda tax adopted by most localities in the United States. The framework used to evaluate the effectiveness of the tax is based on three criteria: efficiency, equity, and complexity. Next, the paper addresses concerns associated with imposing a tiered soda tax based on sugar content, including paternalism, tax avoidance and under-shifting, federalism and regulatory capacity, and substitutes for SSBs. Finally, the paper proposes a tiered soda tax based on sugar content, ideally levied at the state or federal level, as a tool to promote health equity in the United States.

II. HISTORY AND CURRENT STATUS OF LAW FOR SODA/SSB TAX

A. *History of the Law for Soda/SSB Tax*

Minimal taxes on soft drinks in the United States began in the early 20th century. Some early measures include South Carolina's 1925 tax on soft drinks; Indiana's 1963

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[14] *See* Douglas E. Levy, Jason Riis, Lillian M. Sonneberg, Susan J. Barraclough & Anne N. Thorndike, *Food Choices of Minority and Low-Income Employees A Cafeteria Intervention*, 43 AM J. PREVENTIVE MED. 240, 241 (2012).

[15] *See* Frank Sharfroth, *Who's Slurping the Benefits of Soda Taxes?*, GOVERNING (Dec. 2017), https://www.governing.com/commentary/gov-soda-pop-beverage-taxes.html [https://perma.cc/48LL-WGFX].

sales tax on candy, gum, and bottled drinks; and New York State's 1965 sales tax on soft drinks and candy.[16] They were largely different from the modern soda taxes. The rates were so low (e.g., tax rate of $0.01 per 12 ounce container in South Carolina) that their effect on sales and consumption may have been negligible, consistent with the fact that they were aimed at raising revenue instead of discouraging consumption.[17] A lot of these early taxes were sales taxes that did not show up in the price of the beverages themselves, meaning consumers were less aware of the increased cost and less likely to decrease consumption.[18] It was long after these preliminary versions of soda taxes were implemented that the modern concept of soda taxes emerged. In 2009, an article was published in response to the compelling public health concern of the link between SSBs and NCDs, proposing a one cent per ounce excise tax on SSBs.[19]

The legislative history of the modern soda tax in the United States is full of obstructions, mostly sponsored by the beverage industry. Philadelphia was the first big U.S. city to pass a soda tax in 2016.[20] Aiming to overturn the tax, a group of plaintiffs, including beverage industry associations, several soda consumers, and restaurants, filed a lawsuit, claiming the tax duplicated the state's sales tax and thus was preempted by the state's Sterling Act.[21] It was not until 2018 that the Supreme Court of Pennsylvania ruled in favor of the city and offered legal justification for the policy in *Williams v. City of Philadelphia*.[22] The court held that the city's soda tax was not preempted by the Act,[23] which granted the city broad taxing power unless a state tax has the same legal incidence relevant to the same subject.[24] Despite the objectors' assertion that the two taxes were duplicative, the court found they were distinct—the sales tax was imposed on retail sales, was measured by purchase price, and fell directly upon consumers,[25] while the beverage tax applied to distributor-level transactions, independent of whether a retail sale occurred.[26] Opponents of the soda tax also exerted

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16 *See* Michael F. Jacobson & Kelly D. Brownell, *Small Taxes on Soft Drinks and Snack Foods to Promote Health*, 90 AM. J. PUB. HEALTH 854, 856 (2000).

17 *See* David A. Dana & Janice Nadler, *Soda Taxes as a Legal and Social Movement*, 13 NW. J.L. & SOC. POL'Y 84, 87 (2018).

18 *See generally* Jacob Goldin, *Sales Tax Not Included: Designing Commodity Taxes for Inattentive Consumers*, 122 YALE L.J. 258 (2012).

19 *See* Kelly D. Brownell, Thomas Farley, Walter C. Willett, Barry M. Popkin, Frank J. Chaloupka, Joseph W. Thompson & David S. Ludwig, *The Public Health and Economic Benefits of Taxing Sugar-Sweetened Beverages*, 361 NEW ENG. J. MED. 1599, 1601 (2009).

20 Laura McCrystal, *Philadelphia Won the Soda Tax Battle. But Across the U.S., Big Soda is Winning the War*, The PHILA. INQUIRER (Feb. 3, 2020), https://www.inquirer.com/politics/philadelphia/philadelphia-soda-tax-national-beverage-industry-20200128.html [https://perma.cc/9DK8-4JC8].

21 *See* Alison Burdo, *In 4-2 Decision, Pa. Supreme Court Sides with City in Soda Tax Lawsuit*, PHILA. BUS. J. (Jul. 18, 2018), https://www.bizjournals.com/philadelphia/news/2018/07/18/philly-wins-supreme-court-soda-tax-sterling-act.html [https://perma.cc/3N7C-ZGT8].

22 *See* Williams v. City of Philadelphia, 647 Pa. 126, 152 (2018).

23 53 PA. CONS. STAT. ANN. § 15971(a).

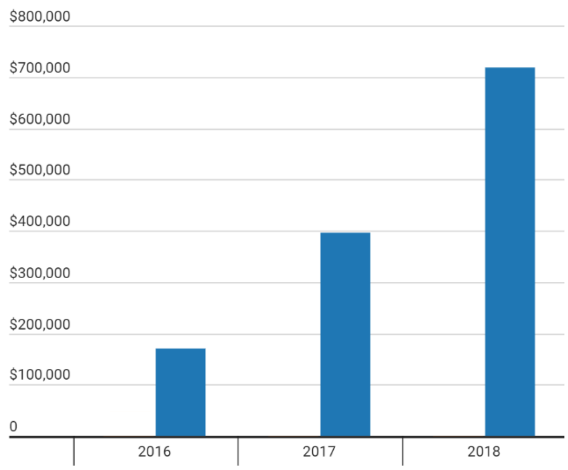
24 *See* Williams, 647 Pa. at 140 (2018).

25 *See id.* at 147.

26 *See id.* at 148.

political influence to create legal barriers for the tax.[27] For example, in California, the beverage industry financially backed a ballot initiative threatening to negate any local tax passed in 2018 with less than a two-thirds supermajority if the state legislature refused to pass food and beverage tax preemption provisions.[28] Passage of this initiative would have resulted in many localities losing essential revenue, so the state legislature passed food and beverage tax preemption provisions instead.[29] Consistent with the strategy of the beverage industry, its trade association, the American Beverage Association, which is funded by companies including Coke and Pepsi, more than tripled the amount it spent lobbying in California from 2016 to 2018.[30]

Amount of American Beverage Association Spent Lobbying in California



Source: California Secretary of State[31]

Serving as a background for soda tax proposals, pro-equity effects of an analogous "sin tax," the tobacco tax, have been generally recognized. Tobacco taxes were also historically used to generate revenue, while the tax increases in the past thirty years stemmed from policymakers' interests in using higher taxes to improve public health by reducing tobacco use and its consequences.[32] Public health experts evaluated a variety of tobacco control interventions and found that "increased tobacco price via tax is the intervention with the greatest potential to reduce socioeconomic inequalities

27 *See* Emma Ryan, *California Just Banned Soda Taxes, What's Next?*, THE DIATRIBE FOUND., https://diatribe.org/foundation/about-us/dialogue/california-just-banned-soda-taxes-whats-next [https://perma.cc/3VKJ-2GDR].

28 *Id.*

29 *Id.*

30 *See* Laurel Rosenhall, *Why California's Efforts to Limit Soda Keep Fizzling*, CALMATTERS (May 22, 2019), https://calmatters.org/economy/2019/05/soda-taxes-fizzling-california-capitol-legislature/ [https://perma.cc/K2DC-7NQH].

31 *See id.*

32 *See* Frank J. Chaloupka, Lisa M. Powell & Jamie F. Chriqui, *Sugar-Sweetened Beverage Taxation as Public Health Policy: Lessons from Tobacco*, 26 CHOICES 1, 1 (2011).

in smoking."[33] Some other interventions, like mainstream non-targeted smoking cessation programs, can have negative effects on health equity, causing higher quit rates among more advantaged smokers.[34]

B. *Current State of Law for Soda/SSB Tax*

Currently, about fifty countries around the world have imposed soda taxes.[35] For example, Mexico imposed a national excise tax of one peso/L (approximately a 10% price increase based on 2013 prices) on non-dairy and non-alcoholic beverages with added sugar that went into effect in 2014.[36] Starting in April 2018, South Africa imposed the Sugary Beverages Levy, fixed at 2.1 cents per gram of sugar content that exceeds 4g per 100 mL (the first 4g per 100 mL are levy free).[37] "Sugar" includes "intrinsic and added sugars and other sweetening matter," but "fruit juice is exempt."[38] The U.K. Soft Drinks Industry Levy (SDIL), announced in 2016 and implemented in 2018, applies to the production and importation of soft drinks containing added sugar,[39] charging manufacturers and importers at a 0 levy rate for drinks with less than 5g sugar per 100 mL (no levy category),[40] £0.18/L for drinks with 5–8g sugar per 100 mL (low levy category), and £0.24/L for drinks with over 8g sugar per 100 mL (high levy category).[41] Pure fruit juices and milk-based drinks are exempt.[42]

Two mainstream taxation models adopted by countries imposing soda taxes are a volumetric tax and sugar content tax. Volumetric tax is imposed based on an eligible

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[33] Sarah Hill, Amanda Amos, David Clifford & Stephen Platt, *Impact of Tobacco Control Interventions on Socioeconomic Inequalities in Smoking: Review of the Evidence,* 23 TOBACCO CONTROL e89, e89 (2014).

[34] *See id.*

[35] *See Countries That Have Taxes on Sugar-Sweetened Beverages (SSBs)*, OBESITY EVIDENCE HUB, https://www.obesityevidencehub.org.au/collections/prevention/countries-that-have-implemented-taxes-on-sugar-sweetened-beverages-ssbs (last visited Nov. 10, 2021) [https://perma.cc/56ND-8K8D].

[36] *See* Colchero M. Arantxa, Barry M Popkin, Juan A Rivera & Shu Wen Ng, *Beverage Purchases from Stores in Mexico Under the Excise Tax on Sugar Sweetened Beverages: Observational Study*, 352 BMJ 1 (2016).

[37] Rachel Arthur, *South Africa Introduces Sugar Tax*, BEVERAGE DAILY (Apr. 3, 2018), https://www.beveragedaily.com/Article/2018/04/03/South-Africa-introduces-sugar-tax [https://perma.cc/ALR4-5BWA].

[38] *Id.*

[39] *See* Peter Scarborough, Vyas Adhikari, Richard A. Harrington, Ahmed Elhussein, Adam Briggs, Mike Rayner, Jean Adams, Steven Cummins, Tarra Penney & Martin White, *Impact of the Announcement and Implementation of the U.K. Soft Drinks Industry Levy on Sugar Content, Price, Product Size and Number of Available Soft Drinks in the U.K., 2015-19: A Controlled Interrupted Time Series Analysis*, PLOS MED. 1.e1003025 (2020).

[40] *See* Finance Act 2017, § 29 (U.K.), "1) A packaged soft drink meets the sugar content condition if it contains:

a) added sugar ingredients, and b) at least 5 grams of sugars (whether or not as a result of containing added sugar ingredients) per 100 millilitres of prepared drink."

[41] *See id*. at § 36, "1) Soft drinks industry levy is charged: a) in the case of chargeable soft drinks that meet the higher sugar threshold, at the rate of £0.24 per litre of prepared drink; b) in the case of chargeable soft drinks that do not meet the higher sugar threshold, at the rate of £0.18 per litre of prepared drink. 2) A chargeable soft drink meets the higher sugar threshold if it contains at least 8 grams of sugars (whether or not as a result of containing added sugar ingredients) per 100 millilitres of prepared drink."

[42] *See* Scarborough et al., *supra* note 39, at 1.e003025.

drink's volume and has been adopted by countries such as Malaysia and Mexico.[43] Sugar content tax is instead imposed based on the sugar content of an eligible drink and has been adopted by countries such as South Africa and Sri Lanka.[44] Among countries that adopt a sugar content tax, some, including the U.K. and the Republic of Ireland, have chosen to impose a tiered tax. France used to impose a volumetric tax, but recently switched to a tiered sugar content tax following the U.K. model.[45] Many countries in the EU, such as Estonia and Portugal, have adopted a tiered tax mechanism like the U.K. model, with taxation thresholds of 5g and 8g sugar per 100 mL.[46] Other countries, such as South Africa and Mauritius, have adopted the absolute sugar content tax model that levies based on the exact sugar content.[47]

In the United States, six localities (Albany, CA; Berkeley, CA; Boulder, CO; Oakland, CA; San Francisco, CA; and Seattle, WA) levy a per volume excise tax on SSBs.[48] One locality (Philadelphia, PA) levies a per volume tax on both SSBs and diet sodas.[49] The District of Columbia levies a special sales tax rate (8%) on purchases of SSBs and artificially sweetened beverages.[50] The District, however, considered switching to a per volume tax.[51] Soda taxes adopted in the United States are generally based on drink volume. But sugar content varies greatly among SSBs, with some having less than two teaspoons of added sugar in each eight-ounce serving, while others have more than seven.[52] A volumetric tax would, therefore, create the curious scenario of increasing the price of a high-sugar drink by the same amount as a low-sugar drink. In comparison, taxes linked to sugar content may be a better way to discourage sugar consumption because the price will increase as sugar content increases.[53]

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43 *See Countries That Have Taxes on Sugar-Sweetened Beverages (SSBs)*, OBESITY EVIDENCE HUB, https://www.obesityevidencehub.org.au/collections/prevention/countries-that-have-implemented-taxes-on-sugar-sweetened-beverages-ssbs (last visited Dec. 17, 2020) [https://perma.cc/56ND-8K8D].

44 *See id.*

45 *See* Luc L. Hagenaars, Patrick P.T. Jeurissen & Niek S. Klazinga, *Sugar-Sweetened Beverage Taxation in 2017: A Commentary on the Reasons Behind Their Quick Spread in the EU Compared with the USA*, 22 Pub. Health Nutrition 186, 187 (2018).

46 *See id*. at 186.

47 OBESITY EVIDENCE HUB, *supra* note 43.

48 *See Soda Taxes*, URB. INST., https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/soda-taxes (last visited Dec. 17, 2020) [https://perma.cc/X2PF-5TXJ].

49 *See id.*

50 *See District of Columbia Tax Changes Take Effect October 1*, D.C. OFF. TAX AND REVENUE (Aug. 2019), https://otr.cfo.dc.gov/release/district-columbia-tax-changes-take-effect-october-1 [https://perma.cc/8V29-HC8V].

51 URB. INST., *supra* note 48.

52 *See* NORTON FRANCIS, DONALD MARRON & KIM RUEBEN, THE PROS AND CONS OF TAXING SWEETENED BEVERAGES BASED ON SUGAR (Dec. 2016), https://www.taxpolicycenter.org/publications/pros-and-cons-taxing-sweetened-beverages-based-sugar-content-0/full [https://perma.cc/CPX6-ND8K].

53 *See id*. at 3.

C. *Acknowledgement of Effects of Soda/SSB Tax Across Different Jurisdictions*

Economists have shown that taxing soda generates net benefits for society, taking into account the health effects, the value of the tax revenues, and other factors.[54] Berkley, CA, the first jurisdiction in the United States to implement a cent per ounce soda tax, saw a 21% decrease in the consumption of sugary drinks within the city's low-income neighborhoods one year after implementing the tax.[55] Introduction of Mexico's one peso/L soda tax[56] resulted in a 5.5% reduction in consumption during the first year and 9.7% in the second year, with the greatest reduction also among low-income populations.[57] Contrary to an opposing argument from the beverage industry, experts found no employment reductions associated with the SSB tax implemented in Mexico in 2014.[58] In the U.K., the effect of a soda tax was evident even before it was actually imposed in 2018 and after it was announced in 2016.[59] From 2015 to 2018, the sales of SSBs with sugar content over 5g/100 mL fell by 50%.[60] The mean sugar content of soft drinks declined by 34% throughout the period.[61] In addition, contrary to an opposing argument from the soft drink industry that the SDIL would harm their profits, experts found no negative impact of SDIL implementation on the domestic turnover of U.K. soft drinks manufacturers and found that manufacturers were largely able to mitigate the effects of the levy before it came into effect.[62]

III. EFFECTIVE DESIGN OF TIERED SUGAR CONTENT TAX

Theoretically, a tax based on sugar content may be more effective in achieving its ends compared to a volumetric tax, because it directly targets the harmful ingredient instead of targeting the vehicle. An example of a similar tax proposal in the United States is the carbon tax. Under a carbon tax formula proposed by economists, people who use coal, a high-carbon fossil fuel, would pay more than those who use natural

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54 *See* New Release, James Devitt, Economists Find Net Benefit in Soda Tax (May 20, 2019), https://www.nyu.edu/about/news-publications/news/2019/may/economists-find-net-benefit-in-soda-tax-.html [https://perma.cc/N9NK-C8GL].

55 *See* Jennifer Falbe, Hannah R. Thompson, Christina M. Becker, Nadia Rojas, Charles E. McCulloch & Kristine A. Madsen, *Impact of the Berkeley Excise Tax on Sugar-Sweetened Beverage Consumption*, AM. J. PUB. HEALTH 1865 (2016).

56 *See* Colchero M. Arantxa, Juan Carlos Salgado, Mishel Unar-Munguía, Mariana Molina, Shuwen Ng & Juan Angel Rivera-Dommarco, *Changes in Prices After an Excise Tax to Sweetened Sugar Beverages was Implemented in Mexico: Evidence from Urban Areas*, PLOS ONE 2 (Dec. 2015).

57 *See* Jack Bobo, Taylor C. Wallace & Sweta Chakraborty, *Are Soda Taxes Good Policy for Combatting Obesity and Malnutrition?*, EUR. J. RISK REG. 412, 415 (2019)

58 *See* Carlos M. Guerrero-López, Mariana Molina & M. Arantxa Colchero, *Employment Changes Associated with the Introduction of Taxes on Sugar-Sweetened Beverages and Nonessential Energy-Dense Food in Mexico*, 105 PREVENTIVE MED. S43, S43 (2017).

59 *See* L. K. Bandy, P. Scarborough, R. A. Harrington, M. Rayner & S. A. Jebb, *Reductions in Sugar Sales from Soft Drinks in the U.K. from 2015 to 2018*, BMC MED. 20 (2020).

60 *Id.*

61 *Id.*

62 Cherry Law, Laura Cornelsen, Jean Adams, David Pell, Harry Rutter, Martin White & Richard Smith, *The Impact of U.K. Soft Drinks Industry Levy on Manufacturers' Domestic Turnover*, 37 ECON. & HUM. BIOLOGY 1 (2020).

gas, which emits less carbon.[63] Such a design can cause people to focus on reducing the harmful ingredient, not its vehicle.

In recent years, scholars and experts in different fields have proposed the adoption of a tiered sugar content tax based on the U.K. model. Shortly after the U.K. announced SDIL, Donald Marron at the Tax Policy Center declared that the U.K. had designed a better version of a soda tax compared to other governments.[64] Sarah A. Roache and Lawrence O. Gostin from the O'Neill Institute for National and Global Health Law at Georgetown University Law Center stated that a key effect of the U.K.'s tiered soda tax was that manufacturers were incentivized to reformulate their beverages by significantly reducing their sugar content, and that as a matter of health equity, such reformulation should occur globally.[65] The American Heart Association, which used to support volume-based sugar taxes, is currently advocating for a tiered sugar content tax as a more effective approach to prevent diabetes and cardiovascular events, to generate federal tax revenue, and to reduce health care costs.[66]

This section explores the comparative advantages and feasibility of adopting the U.K. model of tiered sugar content tax in the United States by examining it under the framework of the three criteria for evaluating the effectiveness of taxation: efficiency, equity, and complexity.[67]

A. *Efficiency*

From a consumer behavior perspective, price elasticity of demand for commodities must be considered when examining the effect commodity taxes have on consumption. An inelastic demand means that the relative change in the quantity that consumers will demand is smaller than the relative change in price, while an elastic demand is the opposite.[68] While the demand for most foods (e.g., sugar and sweets, eggs, meat, fats and oils) is highly inelastic,[69] in the case of SSBs, consumers are more responsive to price changes for SSBs than for most food products. This means that soft drink taxes can be more effective than other food taxes in causing a meaningful shift in consumption.[70] In the case of a tiered sugar content tax, consumers may be more

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63 Margot Sanger-Katz, *How Britain's Soda Tax Plan Could Spur New Low-Sugar Drinks*, N.Y. TIMES, Mar. 29, 2016.

64 Donald Marron, *Britain Builds a Better Soda Tax*, TAX POL'Y CTR. (Mar. 21, 2016), https://www.taxpolicycenter.org/taxvox/britain-builds-better-soda-tax [https://perma.cc/XLB3-FWV7].

65 *See* Roache & Gostin, *supra* note 13, at 489.

66 AM. HEART ASS'N, *Sugary Drink Tax Models Show Health Gains, Cost Reductions, But Vary by Tax Design*, SCIENCEDAILY (June 22, 2020), https://www.sciencedaily.com/releases/2020/06/200622095014.htm [https://perma.cc/9WCQ-NEV3].

67 MICHAEL J. GRAETZ, DEBORAH H. SCHENK & ANNE L. ALSTOTT, FEDERAL INCOME TAXATION, PRINCIPLES AND POLICIES 28 (8th ed. 2018) ("There is widespread agreement that the criteria to be used in evaluating taxes are equity, efficiency, and simplicity. There is considerably less agreement, however, as to the precise meaning of these criteria and the relative priorities that they should be accorded, as well as to such underlying facts as the effect of a tax on people's behavior.").

68 Franco Sassi, Annalisa Belloni, Chiara Capobianco & Alberto Alemanno, *Taxation and Economic Incentives*, *in* REGULATING LIFESTYLE RISKS: THE EU, ALCOHOL, TOBACCO, AND UNHEALTHY DIETS 94, 100 (Alberto Alemanno & Amandine Garde eds., 2014).

69 Tatiana Andreyeva, Michael W. Long & Kelly D. Brownell, *The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food*, 100 AM. J. PUB. HEALTH 216, 218 (2010).

70 Sassi et al., *supra* note 68, at 118.

strongly dissuaded from the consumption of SSBs with high sugar levels given the higher tier of taxation and subsequently the higher price. Another advantage of a tiered sugar content tax is that SSBs with low sugar levels are taxed at a minimal rate, making them strong substitutes for SSBs with high or medium sugar levels, considering that the demand for SSBs can still be relatively inelastic for low-income consumers,[71] thereby substantially reducing the intake of added sugar. As an illustration, total volume sales of soft drinks that contain more than 5g/100 ml of sugar and are subject to the SDIL fell by 50%, while volume sales of low and zero sugar (< 5g/100 ml) drinks rose by 40%.[72]

From an industry behavior perspective, beverage makers are incentivized by the design of a tiered sugar content tax to reformulate their products and reduce the sugar content of their drinks—an incentive that volume-based taxes do not provide. Public health experts believe that improvements in health outcomes could be maximized by substantial product reformulation.[73] Health law experts have also acknowledged the power of reformulation in promoting health, believing that soda product reformulation should occur globally as it "moves away from the long-standing notion of individual responsibility in favor of collective strategies to promote health."[74] The transformation that took place during a two year gap between the announcement and actual adoption of the U.K. soda tax is a good illustration of the incentives for reformulation created by the tax. For example, eight months before the tiered sugar content tax in the U.K. became effective, Coca-Cola had already cut sugar levels in Sprite and Fanta by 30%.[75] In the U.K., six of the top ten soft drink companies had reformulated more than half the products in their portfolio by 2018, leading to a 72% reduction in high- and mid-sugar products.[76] The tiered tax structure promotes product reformulation among beverages companies since there are adjustments they can make to get under the threshold without really affecting the mouthfeel and taste of the products.[77] These adjustments incentivize companies to reformulate to keep prices low.[78] In fact, the average sugar content of SSBs in the U.K. fell from 4.4g/100ml in 2015 to 2.9g/100ml in 2018.[79] Most of the sugar reduction was attributed to product reformulation with the balance coming from changes in purchasing behavior.[80]

The more unintended distortions taxation creates, the less efficient it is in achieving its goals. From the perspective of minimizing unintended distortions, taxation based

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71 On average, low-income adult consumers have a less elastic demand for SSBs than high-income consumers (-0.95 vs. -1.29). *See id.* at 101.

72 *See* Bandy et al., *supra* note 59, at 20.

73 Adam D. M. Briggs, Oliver T. Mytton, Ariane Kehlbacher, Richard Tiffin, Ahmed Elhussein, Mike Rayner, Susan A. Jebb, Tony Blakely & Peter Scarborough, *Health Impact Assessment of the U.K. Soft Drinks Industry Levy: A Comparative Risk Assessment Modelling Study*, 2 LANCET PUB. HEALTH e15, e15 (2017).

74 *See* Roache & Gostin, *supra* note 13, at 489.

75 Tyler Rauh, Comment, *Regulating Sugar-Sweetened Beverages*, 27 U. MIA. BUS. L. REV. 269, 284 (2019).

76 *See* Bandy et al., *supra* note 59, at 20.

77 Sanger-Katz, *supra* note 63.

78 *See* Roache & Gostin, *supra* note 13, at 491.

79 *See* Bandy et al., *supra* note 59, at 20.

80 *See id.*

on sugar content is the least costly way to reduce sugar consumption.[81] Economists also estimated that a tiered tax on high-sugar drinks can achieve the same sugar reduction as a uniform volume tax while imposing about 10% less economic burden.[82] Tax rates should be monitored and adjusted as needed to keep up with inflation in order to maintain its effectiveness.

B. Equity

Soda taxes should be implemented in order to improve public health and promote health equity, rather than to boost state revenue. Evidence indicates that "people with lower incomes consume more sweetened drinks on average than those with higher incomes."[83] On one hand, this means that soda taxes can contribute to health equity by discouraging consumption of unhealthy products among vulnerable populations who are most likely to overconsume and thus to benefit from this discouragement.[84] Also, people with lower incomes are more sensitive to price changes, which magnifies the effect of the tax. If people with lower incomes respond to higher prices caused by soda taxes by cutting consumption, they can avoid the additional soda tax and improve their health. On the other hand, like many other Pigouvian taxes or sin taxes (e.g., alcohol tax, tobacco tax) intended to correct negative externalities of an inefficient market outcome, a soda tax is subject to the doubt of regressive taxation.[85] People with lower incomes tend to consume more soda at the outset of the taxation and can be potentially more burdened by the tax.[86]

However, the concern of regressive taxation can be countered by the health benefits it promotes among people of lower incomes, as well as the medical expenses it potentially reduces. Policymakers and legislators should bear in mind that medical costs for people with obesity were $1,429 higher than those for people with normal weights according to CDC statistics in 2008.[87] Since harm caused by overconsumption of SSBs is itself regressive, a soda tax can be seen as a corrective tax that confers greater benefits on the poor than the rich.[88] Moreover, scholars believe that because lower-income consumers tend to be more responsive to price increases, in certain circumstances, they may bear a lower tax burden than high-income consumers.[89] Taking an analogous sin tax, the tobacco tax, as a reference, a tax increase that raises the price of tobacco products is held to lead to the largest declines in smoking among

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[81] *See* Francis et al., *supra* note 52, at 3.

[82] *See id.* at 22.

[83] *See id.* at 6.

[84] WHO, *Fiscal Policies for Diet and Prevention of Noncommunicable Diseases* 9, (May 2015), http://apps.who.int/iris/bitstream/10665/250131/1/9789241511247-eng.pdf [https://perma.cc/NJ29-4LYU].

[85] *See* Malcolm M. Kates & Hannah Hayward, *Equity in Sugar-Sweetened Beverage Taxes: Who Pays for Obesity Control?*, 15 HARV. PUB. HEALTH REV. 1, 3 (2018).

[86] *See id.*

[87] *Adult Obesity Facts*, *supra* note 7.

[88] *See* Allcott et al., *supra* note 54, at 1559.

[89] *See* Frank J. Chaloupka, Ayda Yurekli & Geoffrey T. Fong, *Tobacco Taxes as a Tobacco Control Strategy*, 21 TOBACCO CONTROL 172, 176 (2012).

the lowest income smokers. The tax burden falls more heavily on higher income consumers whose smoking behavior changes little in response to the price increase.[90]

To further alleviate the concern of regressive taxation, the most attractive soda tax designs are those that maximize reduction in sugar consumption relative to the economic burden they place on families, particularly families with low incomes. The modeling results of a group of economists suggest that the answer is a tax that targets particularly high-sugar drinks, lending support to the adoption of a tiered sugar content tax.[91]

The revenue generated by a soda tax plays an important role in shaping health equity. To best promote health equity, government approaches to soda taxes should involve: 1) taxing; and 2) earmarking the revenue for programs to increase health equity, such as subsidizing healthier foods or funding the healthcare system. Some localities in the United States levying a soda tax have earmarked funds effectively. For example, the revenue from the soda tax implemented in Seattle, WA has been earmarked to increase access to and create financial incentives to purchase fresh fruits and vegetables for low-income individuals and families.[92] In some cases where explicit earmarking is subject to political barriers and is not a feasible option, *de facto* earmarking or ring-fencing may still be achieved by deploying resolutions regarding use of the funds. In Mexico, by 2016, although the SSB tax revenue had not been specifically earmarked, the Senate made a resolution to provide public schools in low-income areas with drinkable water using part of the revenue.[93] In contrast, in South Africa, where there is no link between the SSB tax and health allocations in the budget and any revenue generated goes into the National Revenue Fund for general government spending, the SSB tax is viewed more as a revenue-generating policy than a health-related policy.[94]

C. Complexity

In terms of the complexity involved in administering the tax, a tiered sugar content tax is likely less complex compared to an absolute sugar content tax. It has been suggested by scholars that an absolute sugar content tax calculated based on the exact sugar content may be the most difficult to administer.[95] While a tiered sugar content tax can still be more difficult for taxpayers to calculate than a volumetric tax, it is likely a feasible option in the United States. This is especially true in light of a tiered tax based on alcohol content imposed on certain alcohol beverages either at the federal

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90 *See id.*

91 *See generally* Francis et al., *supra* note 52.

92 *See* Yujin Lee, Dariush Mozaffarian, Stephen Sy, Junxiu Liu, Parke E. Wilde, Matti Marklund, Shafika Abrahams-Gessel, Thomas A. Gaziano & Renata Micha, *Health Impact and Cost-Effectiveness of Volume, Tiered, and Absolute Sugar Content Sugar-Sweetened Beverage Tax Policies in the United States*, 142 CIRCULATION 523, 532 (2020).

93 *See* Orly Tamir, Tamar Cohen-Yogev, Sharon Furman-Assaf & Ronit Endevelt,, *Taxation of Sugar Sweetened Beverages and Unhealthy Foods: A Qualitative Study of Key Opinion Leaders' Views*, 7 ISR. J. HEALTH POL'Y RSCH. 43, 43 (2018).

94 *See* Tayla Ashton Kaltenbrun, Lisanne Monica du Plessis & Scott Drimie, *A Qualitative Analysis of Perceptions of Various Stakeholders on Nutrition-Sensitive Agricultural Interventions, Including the Taxation on Sugar-sweetened Beverages (SSBs), to Improve Overall Health and Nutrition in South Africa*, BMC PUB. HEALTH 1342, 1343 (2020).

95 *See* Hagenaars et al., *supra* note 45, at 186.

or state level.[96] Such an example includes non-carbonated wine at the federal level (taxed at $1.07, $1.57, or $3.15 per gallon depending on alcohol content)[97] and distilled spirits in CA (taxed at $3.30 or $6.60 per gallon based on alcohol content).[98]

Diverging from the U.K. model, which imposes the tax directly on manufacturers and importers, localities in the United States generally follow Berkeley and Philadelphia's lead. These localities collect soda taxes from licensed distributors, holding retailers ultimately responsible if they purchase from noncompliant distributors or other untaxed sources.[99] This difference is rightfully determined by the limitation of taxation at a local level where a large number of SSBs sold and consumed locally come from producers outside the jurisdiction.

In terms of compliance complexity, there may be concern that tiered sugar content taxes levied on distributors of SSBs are less feasible compared to the U.K. model of levying on manufacturers and importers. However, although manufacturers may have more convenience calculating the sugar content of SSBs, distributors are not in a worse position than importers of SSBs, which are also levied in the U.K. model. It is also worth noting that in the United States, information about a drink's sugar content already appears on its federally mandated nutrition label.[100] The feasibility of collecting a tiered sugar content tax from the distributors is also supported by the fact that tiered alcohol content taxes in the United States, subject to the laws of different jurisdictions, are collected from producers, importers, distributors, and sometimes even retailers.[101]

IV. ADDITIONAL CONCERNS OF IMPOSING TIERED SUGAR CONTENT TAX

While the U.K. model of tiered sugar content tax seems to be the ideal model, there are concerns as well as challenges that must be addressed if such a design of soda tax is to be adopted in the United States at the federal level or, more generally, if a soda tax is to gain wider popularity in the different jurisdictions within the United States.

A. Paternalism

"Paternalism" has been defined as "interference of a state or an individual with another person, against their will, and defended or motivated by a claim that the person interfered with will be better off or protected from harm."[102] Joel Feinberg, a U.S.

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96 *See Alcohol Taxes: Federal & State*, ALCOHOL PROBLEMS & SOLUTIONS, https://www.alcoholproblemsandsolutions.org/alcohol-taxes-on-beer-wine-spirits (last visited Dec. 17, 2020), [https://perma.cc/4YF2-5QBU].

97 *Tax Rates*, ALCOHOL & TOBACCO TAX & TRADE BUREAU, https://www.ttb.gov/tax-audit/tax-and-fee-rates (Dec. 22, 2020) [https://perma.cc/V2RB-DNNS].

98 *Tax Rates—Special Taxes and Fees*, CAL. DEP'T OF TAX & FEE ADMIN., https://www.cdtfa.ca.gov/taxes-and-fees/tax-rates-stfd.htm#alcoholictax (last visited Dec. 17, 2020) [https://perma.cc/E2FC-34N3].

99 *See* FRANCIS ET AL., *supra* note 52, at 9.

100 Mac Taylor, *Taxation of Sugary Drinks*, LEGIS. ANALYST'S OFF. (Nov. 28, 2018), https://lao.ca.gov/reports/2018/3903/sugary-drink-tax-112018.pdf [https://perma.cc/MGS2-JYEM].

101 *See, e.g., Tax Guide for Alcoholic Beverage*, CAL. DEP'T OF TAX & FEE ADMIN., https://www.cdtfa.ca.gov/taxes-and-fees/alcoholic-beverage-tax.htm#topics (last visited Dec. 17, 2020) [https://perma.cc/VQ9N-9WXH].

102 Gerald Dworkin, *Paternalism*, STANFORD ENCYCLOPEDIA PHIL. Jul. 1, 2010, at 1.

social philosopher, stated that "paternalism is an offensive word" and is something of which we accuse people.[103] Some people are against paternalism under the influence of the classic libertarian view that "minimal state intervention is the only way to ensure the protection of individual freedom."[104]

However, some regulations may be essential, as illustrated by classical public health regulations such as mandatory seatbelt laws and gambling prohibitions.[105] Gostin stated that public health paternalism that clearly improves public health and wellbeing can offer a "broader freedom."[106] There can be two justifications for regulating public health: 1) prevention of damages to third parties, such as banning smoking on airplanes;[107] and 2) protection of those who are not able to protect themselves, which can be viewed as paternalistic, as with seatbelt laws.[108] Taking the former approach, a soda tax can be viewed as an intervention to prevent the harms caused by the beverage industry, especially since manufacturers and distributors are utilizing all kinds of techniques and strategies to promote the sales of SSBs. The soda tax is also levied, not on the consumers, but on the distributors or manufacturers of SSBs. Even taking the latter approach, the "right to health" stipulated in many international instruments, including the WHO's Constitution and treaties, can likely justify a soda tax as the obligation of states to safeguard health-related rights and regulate to create conditions so that people can be healthy.[109] That said, a soda tax proposal may face enormous pressure from the public if people perceive it mainly as a paternalistic intervention on liberty and lifestyle choices under the impression of the government as a "nanny state."[110]

One useful approach to address the pressure from skeptics of paternalism would be to employ a narrative emphasizing spending programs instead of one emphasizing correcting people's behavior. For example, the Philadelphia soda tax was promoted to raise money for community projects, including improved education for children.[111] As a result, there was broad public support for the measure.[112] In contrast, the failed soda tax proposal in New York was directly promoted as "helping New Yorkers lose

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[103] Fernando D. Simões, *Paternalism and Health Law: Legal Promotion of a Healthy Lifestyle*, 4 EUR. J. RISK REG. 347, 351 (2013); *see also* JOEL FEINBERG, RIGHTS, JUSTICE, AND THE BOUNDS OF LIBERTY: ESSAYS IN SOCIAL PHILOSOPHY (Princeton Univ. Press 1980).

[104] *See* Simões, *supra* note 103, at 351.

[105] *See* Lawrence Gostin & K.G. Gostin, *A Broader Liberty: JS Mill, Paternalism, and the Public's Health*, 123 PUB. HEALTH 214, 214 (2009).

[106] *See id.* at 214–15.

[107] *See* A.L. Holm, R.M. Davis, *Clearing the Airways: Advocacy and Regulation for Smoke-free Airlines*, 13 TOBACCO CONTROL i30, i30-1 (2020).

[108] *See* Simões, *supra* note 103.

[109] Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) from 1966 contains the foundational expression of the right to health. G.A. Res. 2200A (XXI), ¶ 12 (Dec. 16, 1976) According to the ICESCR and General Comment No. 14, the right to health is a "fundamental human right indispensable for the exercise of other human rights", and "every human is entitled to the enjoyment of the highest attainable standard of health conducive to living a life in dignity." *Id.* at 14.

[110] *See* Simões, *supra* note 103, at 352.

[111] *See* Jack Bobo, Taylor C Wallace & Sweta Chakraborty, 10 *Are Soda Taxes Good Policy for Combatting Obesity and Malnutrition?*, EUR. J. RISK REG. 412, 414 (2019).

[112] *Id.*

weight" and was seen to be both coercive and paternalistic.[113] This demonstrates that support for a soda tax can be built if proponents focus public attention on the use of the funds, rather than curbing consumption.[114]

A tiered sugar content tax can be perceived as giving consumers greater freedom of choice while generating more revenue compared to a volume-based tax or absolute sugar content tax.[115] This distinction can help the tax win stronger support from the public. In fact, a study showed that U.K. adults strongly supported SDIL, the U.K. version of a soda tax, and believed it would be effective.[116] Winning support from the public can also make a tax more effective. Scholars found that these effects are magnified in populations with high levels of support for sin taxes.[117]

B. Tax Avoidance and Under-Shifting

One common problem faced by jurisdictions that implement sin taxes is that consumers may go cross-border shopping when tax differences exist between their local jurisdiction and neighboring jurisdictions, thereby avoiding taxes.[118] For soda taxes, tax avoidance through cross-border shopping could constrain revenue generation and hinder the tax's effectiveness at reducing consumption of unhealthy products.

Yet, a study evaluating the impact of soda taxes based on a dataset of beverages sold by stores in Philadelphia and its surrounding area found that low-income households are less likely to engage in tax avoidance via cross-shopping, potentially due to their limited access to transportation.[119] Furthermore, although consumers might engage in cross-border shopping immediately after the tax goes into effect, they may find that doing so in the long run becomes inconvenient.[120] Besides, despite the fact that stores located close to the Philadelphia border faced stronger competition and greater decline in sales after the soda tax is implemented, the study found that these

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113 *See* Anemona Hartocollis, *Failure of State Soda Tax Plan Reflects Power of an Antitax Message*, N.Y. TIMES (Jul. 2, 2010), https://www.nytimes.com/2010/07/03/nyregion/03sodatax.html [https://perma.cc/8UW3-ZLVZ].

114 *See* Bobo et al., *supra* note 111, at 414.

115 "Over a lifetime, the volume, tiered, and absolute sugar content taxes would respectively produce $80.4 billion, $142 billion, and $41.7 billion in government tax revenue." Yujin Lee, Dariush Mozaffarian, Stephen Sy, Junxiu Liu, Parke E Wilde, Matti Marklund, Shafika Abrahams-Gessel, Thomas A Gaziano & Renata Micha, *Health Impact and Cost-Effectiveness of Volume, Tiered, and Absolute Sugar Content Sugar-Sweetened Beverage Tax Policies in the United States A Microsimulation Study*, 142 CIRCULATION 523, 532 (2020).

116 *See* David Pell, Tarra Penney, David Hammond, Lana Vanderlee, Martin White & Jean Adams, *Support for, and Perceived Effectiveness of U.K. Soft Drinks Industry Levy Among U.K. Adults: Cross-Sectional Analysis of the International Food Policy Study*, 9 BMJ OPEN 1, 5 (2019).

117 *See* Brett Doble, Felicia Ang Jia Ler & Eric A. Finkelstein, *The Effect of Implicit and Explicit Taxes on the Purchasing of "High-in-Calorie" Products: A Randomized Controlled Trial*, 37 ECON. & HUM. BIOLOGY 1 (2020).

118 *See* David Merriman, *The Micro-Geography of Tax Avoidance: Evidence from Littered Cigarette Packs in Chicago*, 2 AM. ECON. J.: ECON. POL'Y 61, 61 (2010).

119 *See* Stephan Seiler, Anna Tuchman & Song Yao, *The Impact of Soda Taxes: Passthrough, Tax Avoidance, and Nutritional Effects* 2 (Stanford Univ. Graduate Sch. of Bus., Working Paper No. 19-12, 2019), https://carlsonschool.umn.edu/sites/carlsonschool.umn.edu/files/2019-03/soda_paper.pdf [https://perma.cc/877R-B66H].

120 *See id.* at 26.

stores did not learn to charge prices differently in more competitive markets over time.[121]

That said, the cost of cross-border shopping drops as the taxing jurisdiction gets smaller. From this perspective, current soda taxes in the United States, levied by cities, are subject to greater challenges of cross-border shopping than national SSB taxes imposed in other countries. At the same time, unless people live near city borders, the cost to evade a soda tax is not negligible.

According to economic studies, the optimal local tax rate should be moderate considering the possibility of cross-border shopping.[122] The higher the tax, the more incentivized people are to shop cross-border, diminishing the effect of the soda tax.[123] Therefore, when a jurisdiction imposes a tiered sugar content soda tax and people are provided with more freedom of choice (or in other words, faced with comparatively less price increase in the purchase of SSBs of low sugar levels), they are more likely to shop within the borders of the jurisdiction than they are when a jurisdiction imposes a volumetric soda tax. Still, it is worth considering the option of taxing at the state or federal level to resolve uncertainties of cross-border complexity. The regulatory capacity at the state or federal level is discussed in Section C.

On the other hand, there is concern that the beverage industry may employ the strategy of under-shifting, absorbing some or all of the tax instead of passing it through to consumers.[124] However, based on the experience of the tobacco industry, where under-shifting lowered industry profit margins at the expense of preserving as much sales volume as possible, it appears such attempts may be temporary.[125]

To address the concern of under-shifting, French economists studied gradual price reactions to the soda tax. They found a surprisingly quasi-full shifting of the tax to beverage prices at the macroeconomic level, in support of the frequent assumption of full shifting often made in studies about the impact of soda taxes on soft drinks consumption.[126] According to their analysis, the reason for this average full shifting of the tax is the combination of an under-shifting of the tax for large producers' brands, which likely have a greater capacity to absorb the tax increase, and an over-shifting for private labels.[127] Over-shifting is the opposite of under-shifting, where retail prices are raised more than the tax increase.[128] The French economists stated that because of the lower average prices and higher pass-through of private label products compared to products of other brands, the soda tax likely has a larger impact on low-income

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[121] *See id*. at 15.

[122] *See* Hunt Allcott, Benjamin B. Lockwood & Dmitry Taubinsky, *Regressive Sin Taxes, With an Application to the Optimal Soda Tax*, 134 Q.J. ECON. 1557, 1567 (2019).

[123] *See id.* at 1617.

[124] *See* Hana Ross, Jean Tesche & Nicole Velliosc, *Undermining Government Tax Policies: Common Legal Strategies Employed by the Tobacco Industry in Response to Tobacco Tax Increases*, 105 PREVENTIVE MED. S19, S20 (2017).

[125] *See* Hana Ross & Jean Tesche, *Undermining Government Tax Policies: Common Strategies Employed by the Tobacco Industry in Response to Increases in Tobacco Taxes* 10 (2016), https://tobacconomics.org/uploads/misc/2016/07/2016_Ross_Undermining-tax-policy-updated_EN_FINAL.pdf [https://perma.cc/P2WT-GEGG].

[126] *See* Nicoletta Berardi, Sevestre Patrick & Vigneron Alexandre, *The Impact of a "Soda Tax" on Prices: Evidence from French Micro Data*, 48 APPLIED ECON. 3976, 3989 (2016).

[127] *See id.* at 3990.

[128] *See* Ross et al., *supra* note 124, at S19, S20.

households.[129] Similarly, one year after soda tax implementation in Mexico, results from a study based on evidence from urban areas suggested that the SSB tax was passed along to consumers for all SSBs.[130]

In addition, it is worth noting that tiered sugar content taxes incentivize reformulation, which can decrease the importance of pass-through effects compared to a volumetric tax because its effectiveness is less dependent on full shifting to prices.[131] Public health experts in the U.K. even predicted that the greatest benefits of the SDIL would result from reformulation, with less but still positive health effects resulting from price changes and changes to SSB market share.[132]

C. *Federalism and Regulatory Capacity*

As mentioned in Section B, levying soda tax at the state or federal level can help reduce cross-border shopping. It can also resolve some uncertainties of the effectiveness of adopting a tiered sugar content tax in the United States. Unlike countries like Mexico and the U.K., which are able to impose soda taxes at the national level, the United States has a federalist political system, which creates potential barriers for levying a national soda tax at the federal level. As the Tenth Amendment of the U.S. Constitution states, "the powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively."[133]

Because of the concept that powers are reserved to the states by default, the federal government may need additional justification for the adoption of a national soda tax compared to foreign countries. That said, the Supremacy Clause,[134] Taxing and Spending Clause,[135] and Commerce Clause[136] grant Congress great plenary powers. For example, alcohol taxes have been long imposed both at the state and federal level,[137] indicating there is likely no real legal barrier preventing Congress from passing a soda tax at the federal level. However, until now, federal action in the United States to address obesity has been primarily limited to providing consumers with information about their food, with the Food and Drug Administration (FDA) focusing on truthful nutrition content labelling of food products.[138] Since 2016, nutrition labels have provided information about added sugars,[139] presenting the sugar content of SSBs

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[129] *See* Berardi et al. *supra* note 126, at 3990.

[130] *See* M. Arantxa Colchero, Juan Carlos Salgado, Mishel Unar-Munguía, Mariana Molina, Shuwen Ng & Juan Angel Rivera-Dommarco, *Changes in Prices After an Excise Tax to Sweetened Sugar Beverages Was Implemented in Mexico: Evidence from Urban Areas*, 10 PLOS ONE 1 (2015).

[131] *See* Cherry Law et al., *supra* note 62, at 100866.

[132] *See* Briggs et al. *supra* note 73, at e19.

[133] *See* U.S. CONST. amend. X.

[134] *See id*. art. VI, § 2.

[135] *See id*. art. I, § 8, cl. 1.

[136] *See id.* art. I, § 8, cl. 3.

[137] *See* German Lopez, *The Case for Raising the Alcohol Tax*, VOX (Dec 13, 2018, 8:00 AM), https://www.vox.com/future-perfect/2018/12/13/18130843/alcohol-taxes [https://perma.cc/EPD4-QKD7].

[138] *See* Meaghan Jerrett, *Taxing Sugar-Sweetened Beverages to Combat the Costs of Obesity: City-Level Taxes and How the Federal Government Should Complement Them*, 73 FOOD & DRUG L.J. 465, 468–69 (2018).

[139] *See* 21 C.F.R. § 101.9 (2018).

in a more high-profile manner.[140] The absence of a soda tax at the federal level is likely due to the significant threat of state preemption and effective industry lobbying.[141] The Democratic Party is generally more in favor of the idea of a soda tax (reflected by the fact that cities adopting soda taxes in the United States have a higher concentration of Democratic voters).[142] Public health advocates proposed a federal tax on sugary beverages as one way to help pay for President Obama's health insurance reform package.[143] But, the Obama Administration chose to honor his 2008 campaign promise not to raise "any form" of taxes on families making less than $250,000 a year.[144] At the same time, twenty-one different beverage companies and organizations lobbied the Senate against the excise tax idea during the first nine months of 2009, spending a reported $24 million.[145] Similarly, there is no legal barrier for imposing soda tax at the state level, except in the case of preemption as discussed in Part II Section A.

Currently, revenue/treasury departments of local governments administer soda taxes in the United States.[146] If a soda tax is levied at the federal level, the institution collecting taxes would likely be the Internal Revenue Service (IRS) under the Department of Treasury. Alternatively, Congress could expand the administrative reach of the Alcohol and Tobacco Tax and Trade Bureau (TTB), which currently collects excise taxes on alcoholic beverages, tobacco products, and firearms.[147] Federal or state treasury departments have greater institutional capacity compared to local government departments. Furthermore, local excise taxes tend to be less effective fiscal and policy tools than statewide or national excise taxes.[148] As such, to maximize the impact of soda taxes, governments should levy them at the federal or state levels.

D. Substitutes for SSBs

As discussed in Part III Section A, if we adopt a tiered sugar content tax, SSBs with low sugar levels can be substitutes for SSBs with medium to high sugar levels. In addition, substitution effects have been observed between sugary drinks (excluding juice) and whole milk by children and adolescents.[149] Likely an effect of substitution, the sales of bottled water and other exempted drinks in the U.K. rose by 23% from 2015 to 2018.[150]

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[140] *See* Jerrett, *supra* note 138, at 469.

[141] *See* Hagenaars et al., *supra* note 45, at 188.

[142] *See id.*

[143] *See* Robert Paarlberg, Dariush Mozaffarian & Renata Micha, *Viewpoint: Can U.S. Local Soda Taxes Continue to Spread?*, 71 FOOD POL'Y at 2 (Jun. 2017).

[144] *See id.*

[145] *See id.*

[146] *See Payments, Assistance & Taxes*, CITY OF PHIL. (Dec. 17, 2020), https://www.phila.gov/services/payments-assistance-taxes/business-taxes/philadelphia-beverage-tax/ [https://perma.cc/DQ4E-6HZG].

[147] *See Briefing Book*, THE TAX POLICY CENTER. (Dec. 17, 2020), https://www.taxpolicycenter.org/briefing-book/what-are-major-federal-excise-taxes-and-how-much-money-do-they-raise [https://perma.cc/42PD-MZUK].

[148] *See Taxation of Sugary Drinks*, LEGIS, ANALYST'S OFF. (Dec. 17, 2020), https://lao.ca.gov/Publications/Report/3903#Allocating_the_Revenue [https://perma.cc/KC2T-E3LW].

[149] *See* Jason M. Fletcher, David E. Frisvold & Nathan Tefft, *The Effects of Soft Drink Taxes on Child and Adolescent Consumption and Weight Outcomes*, 94 J. PUB. ECON. 967, 967 (2010).

[150] *See* Bandy et al., *supra* note 59, at 3.

At the same time, to promote healthier substitutes for sugary drinks, governments should work on increasing accessibility of drinkable water and milk. While tap water in the United States meets federal and state standards, lead in drinking water remains a concern.[151] For example, the U.S. Environmental Protection Agency (EPA) estimates that "drinking water can make up 20 percent or more of a person's total exposure to lead."[152] In an effort to increase milk accessibility to low-income populations, the U.S. Department of Agriculture (USDA) announced in July 2020 the award of nearly $1 million for an innovative pilot program designed to encourage Supplemental Nutrition Assistance Program (SNAP) participants to purchase and consume milk.[153]

Artificially sweetened beverages (such as Diet Coke) are sometimes seen as potential substitutes for SSBs, but the substitution effect may be weaker than imagined. One year after soda tax implementation in Oakland, CA, it was found that price promotions fell for not only SSBs but also for artificially sweetened beverages, which were not taxed.[154] The findings indicate that retail prices for artificially sweetened beverages likely increased because the beverage industry tried to curb the impact of lower sales by reducing beverage price promotions.[155] More importantly, there has been an absence of consensus or clear evidence on the harms of consuming artificially sweetened beverages.[156] For example, experts at the Cancer Epidemiology Centre in Australia found that for SSBs, the hazard ratio (HR) for obesity-related cancers increased as frequency of consumption increased. However, for artificially sweetened soft drinks, the HR for obesity-related cancers was not associated with consumption.[157] Therefore, governments should not worry too much about the taxation of artificially sweetened beverages at this stage.

V. CONCLUSION

To tackle the increasingly severe problem of health inequity between high- and low-income communities in the United States, reducing SSB intake among low-income populations is essential. This paper proposes a tiered soda tax based on sugar content, levied ideally at the state or federal level, as an important tool to promote health equity in the United States.

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151 *See* Christina A Hecht, *Improving Drinking Water Safety, Access, and Consumption in the U.S.*, THE CONFLUENCE (Nov. 2, 2020), https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=44095 [https://perma.cc/MUM9-B4NQ].

152 *Basic Information about Lead in Drinking Water*, ENV'TL PROT. AGENCY, https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water (last visited Nov. 12, 2021) [https://perma.cc/EWX5-ZGA4].

153 Press Release, United States Dep't of Agric., *USDA Announces Award for New Milk Incentive Program* (Jul. 30, 2020) (on file with author).

154 *See* Shannon N. Zenk, Julien Leider, Oksana Pugach, Andrea A. Pipito & Lisa M. Powell, *Changes in Beverage Marketing at Stores Following the Oakland Sugar-Sweetened Beverage Tax,* 58 AM. J. PREVENTIVE MED. 648, 654 (2020).

155 *See id.*

156 *See e.g.*, Vasanti S. Malik, Yanping Li, An Pan, Lawrence De Koning, Eva Schernhammer, Walter C. Willett & Frank B. Hu, *Long-Term Consumption of Sugar-Sweetened and Artificially Sweetened Beverages and Risk of Mortality in U.S. Adults*, 139 CIRCULATION 2113, 2113 (2019).

157 *See* Allison M. Hodge, Julie K. Bassett, Roger L. Milne, Dallas R. English & Graham G. Giles, *Consumption of Sugar-Sweetened and Artificially Sweetened Soft Drinks and Risk of Obesity-Related Cancers*, 21 PUB. HEALTH NUTRITION 1618, 1618 (2018).

Adoption of a tiered sugar content tax on SSBs alone cannot solve the problem of health inequity. As discussed, there are other public health measures that are necessary to augment the effectiveness of a soda tax, including earmarking and increasing accessibility of drinkable water and milk. Governments at the federal, state, and local levels should also make additional efforts to promote health equity, such as improving healthcare services. Ultimately, resolving health inequity requires a comprehensive and integral package of regulatory interventions.