

Equity in Sugar-Sweetened Beverage Taxes: Who Pays for Obesity Control?

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Global public health campaigns have made great strides in the treatment, prevention, and elimination of infectious diseases. Combined efforts of organizations like the World Health Organization (WHO), Rotary International, the United States Centers for Disease Control and Prevention (CDC), the United Nations Children’s Fund (UNICEF), and the Bill and Melinda Gates Foundation have led to successful reduction and vaccination campaigns against tuberculosis, polio, and recently human papilloma virus (HPV). While the burden of infectious disease is still great in many regions of the world, public health concern has recently begun to shift toward non-communicable diseases (NCDs) such as cardiovascular disease, chronic respiratory diseases, cancer, and diabetes. Evidence from the WHO suggests that NCDs now cause over 40 million deaths each year, or 70% of all deaths, far outnumbering deaths due to infectious disease.¹

Just as years of research helped us to understand infectious diseases and the vaccines and medicines needed to prevent their spread, research has revealed distinct preventable and modifiable risk factors associated with NCDs. Metabolic risk factors linked to unhealthy diet, inactivity, and obesity have been implicated in diabetes and cardiovascular disease; cardiovascular disease is currently the most dangerous NCD with concern to premature death.¹ At one point in time, cardiovascular disease was seen almost exclusively in high-income countries, but the spread of Western fast-food chains and dietary habits has led to an increase in cardiovascular disease even in low- and middle-income countries.² Many of these countries now face a “double burden of disease,” as NCDs increase in prevalence while infectious diseases like HIV/AIDS and malaria remain leading causes of mortality.³ Luckily, dietary behavior is modifiable, and the risks associated with an unhealthy diet, particularly one high in salt,

¹ World Health Organization. (2017, June). Noncommunicable diseases. Retrieved from <http://www.who.int/mediacentre/factsheets/fs355/en/>
² Gersh, B. J., Sliwa, K., Mayosi, B. M., & Yusuf, S. (2010). The epidemic of cardiovascular disease in the developing world: Global implications. *European Heart Journal*, 31(6), 642-648. doi:10.1093/eurheartj/ehq030

³ Boutayeb, A. (2006). The double burden of communicable and non-communicable diseases in developing countries. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 100(3), 191-199. <https://doi.org/10.1016/j.trstmh.2005.07.021>

sugar, and fat, can be avoided. The health risks associated with unhealthy diets are relatively well known, but on whom does the burden fall to regulate and improve eating practices? Is it the responsibility of the individual to self-regulate, or does the government have a role in protecting its citizens from dangerous eating practices?

In the past decade, an increasing number of governments, including select municipalities in California, Colorado, Illinois, Pennsylvania, Oregon, and Washington, DC, have begun taking steps to influence the nutritional habits of their citizens through the development of taxes levied on foods linked to obesity and cardiovascular disease (often called a “sin tax” or “fat tax”).⁴ Popular in recent news is the implementation of taxes on sugar-sweetened beverages (SSBs), designed to reduce their purchase and consumption. Evidence from Berkeley, California, one of the first cities in the United States to implement such a tax, indicates their potential for success. Within just one year of the tax being implemented, overall SSB sales declined roughly 10% without evidence of increased grocery bills for consumers in the area studied or overall revenue losses for stores.⁵ Sugar taxes are by no means new; Norway and Denmark have taxed refined sugar products like soda since the 1920s and

'30s, but these taxes existed largely for economic reasons. Only in recent years have these taxes been designed to promote healthy lifestyles and to curb sugar intake in both developed and developing nations. These Pigouvian taxes are designed not only to reduce sugar intake but also intended to lower overall healthcare costs associated with cardiovascular disease and obesity. In children, excessive sugar intake has been linked to preventable NCDs including diabetes, dental caries, and asthma.^{6,7} A systematic review drawing on 30 publications suggests that increased consumption of SSBs is associated with obesity and related diseases in adults as well.⁸

Well-intentioned though they may be, at what point do these taxes overstep government influence on an individual's right to autonomy in decision-making? On whom does the increased financial burden of this taxation fall? It is important to think of the long-term effects of such taxes on individuals, healthcare systems, and the economy as a whole. Government interventions are often labor-intensive and costly. However, economic modeling has predicted that a United States SSB tax of one cent per ounce implemented from 2015-2025 would save more money in health

⁴ Cruickshank, H. (2018, April 19). Could UK's New 'Sugar Tax' Work in the US? Healthline

⁵ Silver, D.L., Ng, S.W., Ryan-Ibarra, S., Taillie, L.S., Induni, M., Miles, D.R., Poti, J.M., & Popkin, B.M. (2017). Changes in prices, sales, consumer spending, and beverage consumption one year after a tax on sugar-sweetened beverages in Berkeley, California, US: A before-and-after study. *PLOS Medicine*, 14(4): e1002283. <https://doi.org/10.1371/journal.pmed.1002283>

⁶ Bleich, S. N., & Vercammen, K. A. (2018). The negative impact of sugar-sweetened beverages on

children's health: An update of the literature. *BMC Obesity*, 5(1). doi:10.1186/s40608-017-0178-9

⁷ Park, S., Akinbami, L. J., Mcguire, L. C., & Blanck, H. M. (2016). Association of sugar-sweetened beverage intake frequency and asthma among U.S. adults, 2013. *Preventive Medicine*, 91, 58-61. doi:10.1016/j.ypmed.2016.08.004v

⁸ Malik, V. S., Schulze, M. B., & Hu, F. B. (2006). Intake of sugar-sweetened beverages and weight gain: a systematic review. *The American Journal of Clinical Nutrition*, 84(2), 274-288. doi:10.1093/ajcn/84.1.274

expenditures than it would cost to implement and could prevent as many as 575,000 cases of childhood obesity.⁹

Economic analyses have shown that such SSB taxes are likely to have a greater impact on low-income individuals, in what is referred to as a “regressive income effect,” because individuals in those settings are more likely to be beholden to cost when making decisions about food.¹⁰ However, the difference in financial burden across income classes may be moderate, and similar reductions in body weight across high- and low-income segments suggest potential population health benefits regardless of socioeconomic status.¹¹ Evidence does indicate, however, that those in low-income environments may also be the largest consumers of obesogenic foods and therefore most likely to benefit from such a lifestyle change indirectly imposed by SSB taxes.¹² It seems, therefore, that low-income groups would feel the financial burden of these taxes most strongly, yet could also benefit most, from a health perspective, from their implementation. Theoretically, the entire US tax-paying population would also benefit from lower healthcare spending on obesity-related diseases. Is it fair, then, that those at

the bottom of the US income system should disproportionately bear the burden of such a tax?

Perhaps government approaches to taxes aimed at improving nutrition should be two-fold: the implementation of a Pigouvian tax aimed at reducing unhealthy dietary consumption (like sugar, fat, or salt) and the use of funds from such a tax to provide subsidies for healthier foods, nutritional education programs, or local community gardens, particularly in low-income communities most affected by these taxes.¹¹ This approach would limit the financial burden placed upon any one segment of the population and continue to encourage healthy lifestyle habits. From the political perspective, earmarking health-related tax revenues to fund health-related projects has been shown to increase public support for such measures.¹³

Some cities have already embraced this tactic. Berkeley, California reserved almost 42% of the anticipated \$1.5 million annual revenue generated by the SSB tax in its first year for nutrition-oriented school district initiatives.¹⁴ More recently, Philadelphia implemented its own SSB tax and pledged

⁹ Gortmaker, S. L., Wang, Y. C., Long, M. W., Giles, C. M., Ward, Z. J., Barrett, J. L., Craddock, A. L. (2015). Three Interventions That Reduce Childhood Obesity Are Projected To Save More Than They Cost to Implement. *Health Affairs*, 34(11), 1932-1939. doi:10.1377/hlthaff.2015.0631

¹⁰ Basu, S., & Madsen, K. (2017). Effectiveness and equity of sugar-sweetened beverage taxation. *PLOS Medicine*, 14(6). doi:10.1371/journal.pmed.1002327

¹¹ Backholer, K., Sarink, D., Beauchamp, A., Keating, C., Loh, V., Ball, K., Peeters, A. (2016). The impact of a tax on sugar-sweetened beverages according to socio-economic position: A systematic review of the evidence. *Public Health Nutrition*, 19(17), 3070-3084. doi:10.1017/s136898001600104x

¹² Powell, L. M., & Chaloupka, F. J. (2009). Food Prices and Obesity: Evidence and Policy Implications for Taxes and Subsidies. *Milbank Quarterly*, 87(1), 229-257. doi:10.1111/j.1468-0009.2009.00554.x

¹³ Wright, A., Smith, K.E., & Hellowell, M. (2017). Policy lessons from health taxes: a systematic review of empirical studies. *BMC Public Health*, 2017; 17:583. doi:10.1186/s12889-017-4497-z

¹⁴ Lynn, J. (2016, January 20). City Council votes to allocate ‘soda tax’ revenue to school district, city organizations. *The Daily Californian*, Retrieved from <http://www.dailycal.org/2016/01/20/city-council-votes-allocate-soda-tax-revenue-school-district-city-organizations>

99% of the tax’s anticipated 2021 fiscal year revenue toward three initiatives intended to provide support for those experiencing poverty in the city¹⁵ Funds will be distributed between initiatives that create pre-kindergarten programs, rebuild community parks and libraries, and develop comprehensive community schools, with a focus on areas of the city that experience “concentrated poverty” and its associated elevated health risks.¹⁶ The earmarking of such funds for use in health and nutrition promotion would thus ensure that the underlying purpose of the initial tax, nutrition improvement, is furthered and that the tax does not become simply a penalty for “bad behavior.”

¹⁵ City of Philadelphia Department of Revenue. (2018). Where the money goes. Retrieved from <http://www.phillybevtax.com/Consumers/Where-The-Money-Goes>

¹⁶ The City of Philadelphia. (2018). What is rebuild? Retrieved from <http://rebuild.phila.gov/about/what-is-rebuild>