

# Simple Is Better for Local Beverage Tax Policy Diffusion

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**B**everage taxes are a promising policy approach to reduce consumption of sugar-sweetened beverages (SSBs), which are linked to adverse health outcomes such as type 2 diabetes mellitus and obesity. They may be especially effective among low-income and racial ethnic minority populations, who consume more SSBs and who are disproportionately affected by health problems linked to excessive SSB consumption. Beverage taxes have been adopted by 7 localities across the United States and in >40 countries around the world using 3 different tax designs: volume (tax per ounce), absolute (tax per gram of sugar), or tiered (tax beverages with more added sugars at a higher rate than beverages with less added sugars).

Mounting peer-reviewed empirical evidence in the United States, where all beverage taxes are volume based, suggests reductions in sales of taxed beverages from 21%<sup>1</sup> to 39%.<sup>2</sup> Beverage taxes also appear to reduce consumption of SSBs, although this research base is less established and results are mixed (selected studies are cited).<sup>3-6</sup> Outside of the United States, available evidence from the tiered tax in the United Kingdom indicates that it has led to lower sales of SSBs.<sup>7</sup> In South Africa, evidence from the absolute tax on grams of sugar suggests that prices rose similarly for high- and low-sugar beverage products rather than linearly on the basis of the tax design. Evidence on sales for absolute taxes is not yet available.

A critical, unanswered question for which we lack empirical data is the health impact of beverage taxes. Microsimulation models can help to fill this gap and inform policy decisions related to tax structure. This is especially important for health outcomes that are hard to measure empirically because of small individual effects, the inability to randomize exposure, and the long lag between change in exposure and change in health. Existing microsimulation models based on volume taxes predict significant reductions in obesity and cardiovascular disease.<sup>8,9</sup> In the current issue of *Circulation*, the article by Lee et al<sup>10</sup> extends this research by looking at the comparative health and economic effects of the 3 real-world beverage tax designs (volume, absolute, and tiered). It has a number of key strengths. The Lee et al finding from a validated disease prediction model that a volume-based tax would prevent 850 000 cases of cardiovascular disease and 269 000 cases of diabetes mellitus contradicts common claims by the beverage industry that the health benefits of taxing sweetened beverages are overstated. Second, their focus on diabetes mellitus and cardiovascular disease, rather than obesity, may be more important for garnering support from policy makers and the public because it both provides a mechanistic model of how reducing SSB intake can benefit health and healthcare spending and avoids the stigma that may limit policy responses to the obesity epidemic.

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The primary contribution of the Lee et al study is its comparative analysis of tax strategies. However, a number of strong assumptions are needed to support their conclusion that tiered or absolute taxes would lead to greater health savings than the volume taxes already implemented in the United States. Most important, for their volume-based tax analysis, the authors use a 1-cent-per-ounce tax. Given that taxes in the United States range from 1 to 2 cents per ounce, the decision to focus on the lowest tax rate may provide artificially low health and economic effects for the volume-based tax relative to the tiered and absolute. Other research has shown that the 1-cent-per-ounce tax rate might be too low for a state-level tax to yield health and economic benefits.<sup>11</sup> Perhaps a better comparison would be to use the same tax level from the tiered tax proposed by Lee et al based on the current distribution of beverage purchases across tiers (1.75 cents per ounce) or the 2 cents-per-ounce tax on the political agenda.<sup>12</sup> Matching the tax level across structures or using a 2 cents-per-ounce volume tax in the Lee et al model would substantially reduce or eliminate the difference in cases of diabetes mellitus and cardiovascular disease averted and the healthcare costs avoided, making the modeled health impacts very similar across the 3 tax structures.

Lee et al based their modeling assumption on a national tax. This makes sense from a public health standpoint (because it would mostly eliminate customers purchasing beverages from neighboring jurisdictions to avoid the tax) and appears to be legally and administratively feasible,<sup>13</sup> but it may not be politically feasible. Opposition from the beverage industry is fierce, and in addition to defeating beverage taxes in local jurisdictions, the beverage industry has helped several jurisdictions to enact preemption laws that outlaw beverage taxes, with a number of other states considering similar legislation. Therefore, passing a national beverage tax in the United States would likely be a very steep hill politically, although the coronavirus disease 2019 (COVID-19) pandemic could create a window of opportunity as a result of significant revenue gaps.

In the absence of a national tax, it is important to think about the implications of the 3 tax structures at the local level. Both the absolute and tiered taxes require the industry to reformulate beverage offerings to maximize the health benefit of these approaches compared with the volume tax. Evidence from the tiered tax in the United Kingdom suggests that reformulation is happening at the national level and sales of sweetened drinks are declining.<sup>7</sup> A possible unintended consequence of reformulation is the replacement of caloric sweeteners with artificial sweeteners to maintain the same level of sweetness, which is occurring in the United Kingdom<sup>7</sup> and may have negative implications for health, although this evidence is inconclusive. According to a recent study by Powell et

al,<sup>12</sup> moving from the highest sugar tier (tier 3) to the middle tier (tier 2) would require a 20% to 38% reduction in sugar content for the vast majority of beverages sold in this category in the United States. The extent to which beverage companies will respond to a tiered tax with this level of reformulation implemented at the local level remains an unanswered question. Even if beverage companies decided to reformulate and distribute different beverages to a municipality that had implemented a tiered or absolute tax, enforcing the sale of properly reformulated versions of the brands by small retailers would require substantial resources. In this case, the assumption by Lee et al of equivalent tax collection costs for both government and industry across the 3 tax structures would be unlikely.

Volume tax designs have been criticized for providing little to no industry incentive to reformulate products because tax rates are the same whether a beverage is high in sugar or low in sugar. But they are working at the local level, and they appear to be proequity policies. For example, in Philadelphia, where there is a tax of 1.5 cents per ounce on beverages sweetened with sugar or artificial sweeteners, results suggest that the beverage tax may help people with lower income or education levels more than those with higher levels.<sup>2</sup> Relatively larger effects of beverage taxes among low-income populations have also been seen in Mexico, where there is a national volume-based tax. If beverage taxes consistently produce greater SSB reductions among groups at higher risk for SSB consumption, these subpopulations may reap greater long-term health benefits and have fewer healthcare costs. Consistent with this view, Lee et al find that health gains were largest in younger adults, Blacks, Hispanics, and lower-income Americans. As Lee et al note, a limitation of their model is that it starts at 35 years of age, which may reduce our understanding of the impact of beverage taxes on the life-course risk of disease and on health equity among children and young adults.

Given the lack of a clear difference in the health effects of the tax structures evaluated by Lee et al when considering a 2 cents-per-ounce volume tax, the likelihood of policy adoption becomes the key predictor of public health impact of each structure. An active field of political science has focused on the factors predicting policy diffusion.<sup>14</sup> Among other factors, researchers have evaluated how policy characteristics influence the rate of policy diffusion. Salience (ie, importance of a policy to a large part of the population) and complexity (ie, requires specialized knowledge to determine how the policy will work) have received particular attention as predictors of adoption. Policy complexity has been shown to reduce policy diffusion and to offset the pro-diffusion effect of high salience.<sup>14</sup> Uncertainty among policy makers about whether a tiered or absolute tax will spur reformulation at the local level could dampen

interest. This is particularly the case for policy makers needing higher certainty for tax revenue projections earmarked to promised programs. Implementation challenges, which are likely to be higher with more complicated tax structures, further increase the uncertainty facing policy makers.

In the United States and around the world, SSBs are becoming more affordable, largely because of the higher rate of income growth. As policy makers at the state and local levels seeking to raise revenue and improve population health debate implementing a beverage tax, it is important not to let the perfect be the enemy of the good. As Lee et al conclude, all 3 of the SSB tax designs (volume, absolute, and tiered) would generate substantial health gains and savings. However, the simpler volume-based beverage tax may best facilitate adoption by state and local policymakers.

## ARTICLE INFORMATION

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### Disclosures

None.

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