

Are Soda Taxes A Cure For Obesity?

by David Gratzer, with the collaboration of Jasmin Guénette



Roughly one in four Canadian adults is obese—with the percentage of obese Canadians continuing to rise. Every year, obesity results in billions of dollars in preventable health care costs for governments, taxpayers, employers and families. To reverse this trend, many public health advocates, among whom the Ontario Medical Association, have been calling for various types of taxes and regulation on fatty and sugary foods.¹ These include a “soda tax,” that is, a tax on soft drinks and other sweetened beverages. Although *per capita* consumption of soft drinks in Canada has already fallen by 32% between 1999 and 2011 (see Figure 1), they believe that this will reduce obesity by driving consumers away from them in even greater numbers.

In early 2012, a spokesperson for Federal Health Minister Leona Aglukkaq rejected the idea of a Canada-wide soda tax.² Still, a Public Health Agency of Canada poll released this year found that 40% of Canadians would support a soda tax if funds raised were used to fight childhood obesity.³ Is there any indication that such a tax would be effective?

Soda tax proponents generally call for an excise tax, imposed directly on manufacturers and wholesalers of sugar-sweetened beverages. In a widely-cited 2009 paper in the *New England Journal of Medicine*, Dr. Kelly Brownell and other proponents of a tax on sweetened beverages argued that an excise tax would be “simpler to administer” than a retail tax.⁴ A retail tax would be less effective, since it would only raise the cost to consumers after the purchase decision was made.

For such a tax to have an impact, a given increase in price has to lead to an appreciable fall in the overall quantity of soda demanded by consumers, which *must* in turn lead to population-wide weight loss. This is the basic assumption of soda tax proponents. Dr. Brownell projects that a modest tax would cut net U.S. calorie intake “by a minimum of 20 kcal [calories]

per person per day.” A study by the U.S. Department of Agriculture projects an average weight loss of roughly four pounds over a year from a 20% soda tax.⁵ A 2012 estimate in *Health Affairs* projects that a smaller tax should lead to enough weight loss to extend 26,000 lives over a ten-year period.⁶

These projections have been disputed by other scientists because they are too broad and are based on methodologically weak assumptions. In a *Lancet* article, researchers explain that public health advocates usually overstate the potential weight loss estimates from anti-obesity policy interventions, because they rarely take into account the fact that a person’s metabolism will adjust to minor reductions in calorie intake.⁷ However, optimistic assumptions are not the main problem with these scenarios.

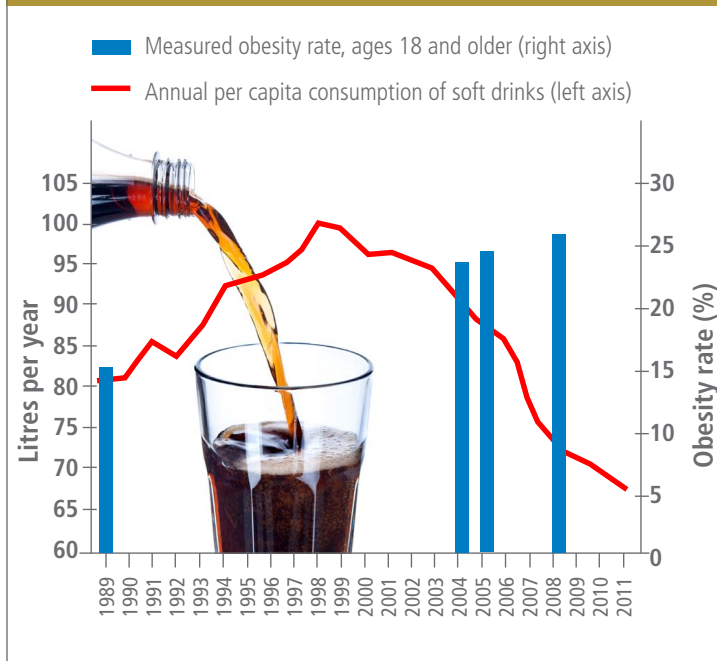
A narrow focus

Even if consumers were really going to cut their consumption of soda and other sweetened beverages appreciably following a price increase, several limitations make soda taxation a poor policy choice. The first one is the excessively narrow focus of such a tax.



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Figure 1
Consumption of soft drinks and obesity rate
in Canada (1989 to 2011)



Sources: Statistics Canada, CANSIM, Table 002-0011, "Food available in Canada," 2012. Public Health Agency of Canada, "Obesity in Canada," 2011, <http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-oac/adult-eng.php>.

Note: We have used the measured obesity rate rather than the self-reported obesity rate because the latter understates the problem of obesity. Data for measure obesity rates only exist for these four years.

Soda critics often cite a particular US study in a manner that overstates soda's share of the problem. For example, a Canadian anti-soda organization's website claimed that "a 2004 study found that soft drinks are the largest single contributor of caloric intake in the US."⁸ This is untrue.

In fact, the study in question was the National Health and Nutrition Examination Survey (NHANES). The survey's 2003-2004 data and subsequent reports found that soda was just one unhealthy component among many, when consumed in too large quantities, in the American diet. Grain-based desserts, yeast breads, as well as chicken and chicken mixed dishes all provide a higher share of dietary calories than did soda, energy and sport drinks combined in the 2005-2006 NHANES data. The latter accounted for 5.3% of total calorie intake.⁹ A separate 2011 study of dietary changes finds that cuts to potato chip or potato intake were associated with greater weight loss than a similar reduction in soda intake.¹⁰

Canadians for their part get less than 2.5% of their calories

from soft drinks.¹¹ In most age and gender categories, Canadian adults consume more coffee or beer than soft drinks.¹² A large Tim Hortons "double-double" coffee has 270 calories, while a "triple-triple" has 405 calories. The chain's popular iced cappuccino rings in at 470 calories for a large serving with cream. By comparison, a 591 ml bottle of sugar-sweetened Coca-Cola (equivalent to a large cup of coffee) has 260 calories.¹³

Measured on a calories-to-volume basis, these three Tim Hortons drinks are therefore more "sugary" than a bottle of Coca-Cola. But only one—the iced cappuccino—would presumably be taxable under an excise tax model, since sugar and cream are added at the point of sale for the others (see Table 1).

Taxing the manufacture of all sweetened drinks would also capture non-carbonated drinks, including flavored milks, sweetened teas, fruit smoothies or otherwise healthy juices.

Another reason activists like to focus on soda and sweetened beverages is that they are a large source of *added* sugar, that is, refined calorie-containing sweeteners added to foods and beverages during processing or preparation. However, obesity is not caused by "added sugar" or "wasted calories." Such terms create a false impression. Given that pizza is rich in sodium and solid fats, 400 calories worth of pizza with "no added sugar" could easily be less healthy than the same calories from a large soda.

A moving target





Another limitation is that even if we wanted to broaden the scope of the tax, it would be difficult to target the right types of drink.

Taxing the manufacture of all sweetened drinks—the preferred solution of most soda tax advocates—would also capture non-carbonated drinks, including flavored milks, sweetened teas, fruit smoothies or otherwise healthy juices like sweetened cranberry juice. Beverages that contain essential nutrients (including calcium, vitamin C and vitamin E) would be taxed. Lawmakers could avoid this dilemma by taxing only carbonated beverages. However, this would leave many calories out of the intervention.

Table 1

Not all calories are equal

Example of inconsistency in the application of an excise tax

TAXED	TAXED	NOT TAXED	NOT TAXED
591 ml bottle of Coca-Cola	Tim Hortons large iced cappuccino with cream	Large Tim Hortons "double-double" coffee	Large Tim Hortons "triple-triple" coffee
260 calories	470 calories	270 calories	405 calories
			

New York City has seen this dilemma in action on a related issue: serving size regulation. As drafted, the new regulation banning any sweetened beverage over 16 fluid ounces has several unintended consequences. One key flaw is how sweetness is defined. The rules define "sweetened" to mean any drink that has more than 25 calories per 8-ounce serving.

As the co-founder of the Honest Tea line of beverages explained,¹⁴ the company's most popular product is an organic Honey Green Tea, which contains 35 calories per 8 ounces in a 16.9-ounce bottle. The slogan, "Just a Tad Sweet" is printed right on the bottle. The company selected this serving size because it was standard for nearby bottlers. Honest Tea can now either take its (low-calorie) tea out of the New York City market, or it can retool its entire production line and distribution system to sell bottles that are a bit smaller, all because its product has only a few more calories per unit than an arbitrary sweetness threshold. One way or another, this won't reduce the rate of obesity in New York City.

Caloric Substitution

All other things being equal, a consumer who is only encouraged to cut soda calories is likely to replace them with other foods and beverages. This is known as "caloric substitution." Soda tax proponents often understate this problem, and their estimates vary widely. In 2009, Dr. Brownell's "conservative estimate" was a caloric substitution rate of 25%. Others assume a 40% substitution rate.¹⁵

Other studies of substitution rates are more pessimistic. One finds that substitution effects are so complex that poorly targeted food and beverage taxes "could actually increase weight."¹⁶ Other researchers found that each additional 1% increase in state soft drink tax rates led "to a decrease in body mass index (BMI) of 0.003 points"—basically a rounding error.¹⁷ Even a very large tax increase might therefore have no perceivable effect. The problem is that the "reduction in soda consumption is completely offset by increases in consumption of other high-calorie drinks."¹⁸

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Political Limits

To cut soda consumption, any tax must be high enough to shift consumer behavior—yet higher taxes reduce the likelihood of political approval. Dr. Brownell and his colleagues called for a tax of one penny per sweetened fluid ounce. In Canada, this formula would raise the price of a standard can of soda by \$0.12 per can, roughly 10%. Most observers argue that any anti-obesity tax would have to increase prices by 20% or more to significantly change behavior.¹⁹

Recession-battered American voters haven't shown much enthusiasm for proposed soda taxes. In 2010, 60% of Washington State voters overturned soda, candy and bottled water taxes in a ballot initiative; the target of their wrath was an excise tax of just two cents per twelve ounces. British Columbia's HST backlash suggests Canadian voters could prove to be just as testy about proposals to raise consumer taxes, which, it should be noted, will hit lots of people who consume only moderate quantities of soda.

Higher taxes may also not deliver expected levels of higher prices for every product.²⁰ Beverage companies will try to protect market share with discounts, loyalty programs, and other promotions. Governments would have to fix prices to counter this problem, again raising the political difficulty of controlling consumer, taxpayer and corporate behaviours in order to attain uncertain goals.

There is little evidence that a Canadian soda tax would be anything more than a politically-motivated tax, arbitrarily levied on a convenient scapegoat.

Conclusion

While heavy-handed taxes and regulations are popular in public health circles, there are better, more constructive options. American and British experiments have shown that positive financial incentives can be more effective at motivating people to achieve dietary and weight loss goals. We must also train and organize primary care providers to help patients see obesity as a preventable medical risk. Students are a captive market when it comes to school meals and school schedules. Public health advocates are right to demand healthier school meals and a return to regular physical education.

The obesity problem is real. There is little evidence, though, that a Canadian soda tax would be anything more than a politically-motivated tax, arbitrarily levied on a convenient scapegoat.

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20. Until recently, most papers, like Kelly D. Brownell *et al.* (*op. cit.*, footnote 4) acknowledged potential political opposition but ignored any potential price impact of a marketplace response. To their credit, Travis Smith *et al.* (*op. cit.*, footnote 5) noted the potential for unexpected price adjustments.

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