

Provided for non-commercial research and education use.  
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/authorsrights>

Contents lists available at [ScienceDirect](#)

Canadian Journal of Diabetes

journal homepage:  
[www.canadianjournalofdiabetes.com](http://www.canadianjournalofdiabetes.com)


## Commentary

## Are Sugar-Sweetened Beverage Taxes a Cost-Effective Means of Reducing Weight?

Jayson L. Lusk PhD\*

Regents Professor and Willard Sparks Endowed Chair, Department of Agricultural Economics, Oklahoma State University, Stillwater, Oklahoma, USA

## ARTICLE INFO

## Article history:

Received 21 May 2013

Received in revised form

25 July 2013

Accepted 3 August 2013

Buhler et al (1) are to be applauded for attempting to reach a consensus on the desirability of new sugar-sweetened beverage (SSB) taxes aimed at fighting obesity. Nevertheless, a group's consensus is only as meritorious as the diversity of ideas and knowledge represented in the group. There are a number of other perspectives that should be considered before lawmakers seriously consider SSB taxes.

The first set of concerns relates to the efficacy of an SSB tax in attaining its ultimate goal: reducing obesity. Buhler et al (1) are correct that an increase in the price of SSBs will probably lower consumption, but the key question is: by how much? It is inappropriate to focus only on the own-price elasticity of demand for SSBs. One reason is that there are substitutes for taxed goods, such as milk, juice and beer. The availability of caloric substitutes will lower the weight impacts of a tax beyond that implied by the own-price elasticity (2). That is one reason why some analyses show that only across-the-board food taxes will significantly affect weight (3). The problem with across-the-board food taxes is that they are, as Buhler et al (1) recognize, regressive. However, the key issue of regressiveness is not, as they suggest, whether the rich and the poor pay the same amount for the taxed goods but rather, the *percent of income* spent on the goods.

Economically, a tax will be effective only to the extent consumers see it reflected in the retail price. In the United States, where taxes are added at the cash register and are not posted on the shelf, the "effective" own-price elasticity is something much smaller (and thus the anticipated weight impacts of a SSB tax are much smaller) than is suggested by an analysis of the conventional own-price elasticity (4). Even if the posted retail price reflects the tax impact, the tax effects will be partially mitigated and

distributed among consumers and producers based on the elasticities of demand and supply.

Further skepticism of SSB tax efficacy comes from the literature on economics and on metabolism. Metabolically, one must translate changes in consumption caused by a tax to changes in weight to fully appreciate the impacts of SSB taxes. The most common approach taken in the literature is to apply some version of the simply linear rule that 3500 kcal equal 1 pound (3,5). However, as shown by Thomas et al (6), the rule almost certainly overstates actual weight losses resulting from reductions in caloric consumption. All of the reasons discussed above help to explain the seeming paradox: that simulated models show SSB taxes to affect weight, when actual variations in SSB taxes across locations seem to have had no impact on weight in the "real world" (7,8).

More fundamentally, one must ask what conceptual basis is being used to assert that SSB taxes will increase consumers' welfare? Presumably, some consumers already consider health impacts when they choose what to eat and drink. More generally, taxing food or SSBs is analogous to reducing consumers' real income, which almost certainly harms the consumers (9). Perhaps consumers suffer from lack of information or other cognitive biases, but even so, Lusk and Schroeter (10) show that only in very limited cases would a tax increase consumers' long-term welfare. Sugden (11) further points out the philosophical (not to mention political) problems encountered when attempting to base public policy on the presumption of consumers' behavioural biases. In particular, asserting that someone else consumes "too much" SSBs presumes that the nutrition expert or politician knows better which factors most impact an individual's ultimate well being than the individual herself or himself. Such paternalism may be justifiable in the case of children or the mentally impaired, but it is less compelling when considering the general population. It is likely the case that excess consumption of SSBs will lead to health problems; however, people care about tasty, satisfying foods and beverages in addition to health. Life is full of difficult tradeoffs, and it is

\* Address for correspondence: Jayson L. Lusk, PhD, Regents Professor and Willard Sparks Endowed Chair in the Department of Agricultural Economics, Oklahoma State University, Stillwater, Oklahoma, USA.

E-mail address: [jayson.lusk@okstate.edu](mailto:jayson.lusk@okstate.edu)

conceptually problematic for a third party to deem another person's choices wrong or incorrect, given that different people have different preferences, incomes and constraints (assuming that people are making decisions with accurate information about the risks they face). If the argument is that people do not understand the risks of SSBs, then the appropriate policy response is information provision, not a tax.

One of the most common assertions is that SSB taxes are required because one individual's choices impose costs on others because of the existence of public healthcare programs. However, forgotten in such claims is the fact that many of the obesity-related costs are private, not public (12). Moreover, the costs to the public health programs are actually transfers among people in an insurance pool, not an economic deadweight loss to society that reduces Pareto efficiency (12). This is why the often mentioned analogy between taxes on SSBs and taxes on cigarettes is misplaced: with cigarettes, second-hand smoke imposed a sizable externality, and a tax could improve society's well being by making smokers consider the costs imposed on others. With obesity, the externality is of a fundamentally different nature, increasing public healthcare costs, which all citizens pay. While such transfers of public health insurance from the nonobese to the obese (and from the healthy to the unhealthy) may or may not be fair, these transfers do not represent the kind of externality that lowers the size of the economic pie. That is not to say that obesity is not costly; it is. But making those costs public via the provision of public health insurance does not create an efficiency-reducing externality.

Even if SSB revenues could be directed toward education programs as Buhler et al (1) suggest, one would need to show how the deadweight loss of the tax is offset by the benefits of extra information. However, Buhler et al (1) presented no evidence showing that the proposed education would change behaviour in a way that the benefits exceed the costs. It must also be recognized that there are already a number of public and private health information

campaigns, and it is unclear what effects yet another would have. This does not mention the challenges of whether it is even politically or logistically feasible to specially earmark SSB tax receipts.

In sum, Buhler et al (1) are correct that obesity is a complicated and multifaceted issue. So too are the consumption, weight and economic-welfare effects of SSB taxes. SSB taxes often appear to be a simple (if partial) solution for a big problem but, as witnessed by Denmark's recent decision to rescind its versions of the "fat tax," the consequences and impacts of such taxes are anything but simple.

## References

1. Buhler S, Raine KD, Arango M, et al. Building a strategy for obesity prevention one piece at a time: The case of sugar-sweetened beverage taxation. *Can J Diabetes* 2013;37:97–102.
2. Schroeter C, Lusk J, Tyner W. Determining the impact of food price and income changes on body weight. *J Health Econ* 2008;27:45–68.
3. Okrent AM, Alston JM. The effects of farm commodity and retail food policies on obesity and economic welfare in the United States. *Am J Agricult Econ* 2012;94:611–46.
4. Zheng Y, McLaughlin EW, Kaiser HM. Taxing food and beverages: theory, evidence, and policy. *Am J Agricult Econ* 2013;95:705–23.
5. Lusk JL, Schroeter C. When do fat taxes increase consumer welfare? *Health Econ* 2012;21:1367–74.
6. Thomas DM, Martin CK, Lettieri S, et al. Can a weight loss of one pound a week be achieved with a 3500-kcal deficit? Commentary on a commonly accepted rule. *Intl J Obesity* 2013;37:1611–3. <http://dx.doi.org/10.1038/ijo.2013.51>.
7. Colantuoni F, Rojas C. Have soda sales tax effects changed over time? Scanner data comparison analyses. Presented at the 2012 Agricultural and Applied Economics Association Meeting, Seattle, Washington, USA.
8. Powell LM, Chriqui J, Chaloupka FJ. Associations between state-level soda taxes and adolescent body mass index. *J Adoles Health* 2009;45:S57–63.
9. Neil JR. When do fat taxes increase consumer welfare? Comment on a claim by Lusk and Schroeter. *Health Econ* 2013;22:1282–3. <http://dx.doi.org/10.1002/hec.2922>.
10. Lusk JL, Schroeter C. When do fat taxes increase consumer welfare? Reply to Neill. *Health Econ* 2013;22:1284–5.
11. Sugden R. Why incoherent preferences do not justify paternalism. *Constitutional Politics Econ* 2008;19:226–48.
12. Bhattacharya J, Sood N. Who pays for obesity? *J Econ Perspect* 2011;25:139–58.