

Editorial

Sugar-sweetened beverage taxes in 2018: a year of reflections and consolidation

The year 2018 was undoubtedly momentous for sugar-sweetened beverage (SSB) tax implementation, with the enactment of SSB taxes in nine additional jurisdictions around the world. The year was also marked by new evidence supporting the effectiveness of SSB taxes to reduce the purchase and consumption of SSB. On the other hand, industry opposition reached new heights and further global commitment to tax SSB in 2018 was minimal. But the public health agenda is consolidating and there is reason for optimism that past momentum will continue into the new year and beyond. Below we reflect on the year that was 2018 for policies to tax SSB.

Implementation of sugar-sweetened beverage taxes

The number of countries and jurisdictions that implemented an SSB tax grew exponentially this year, with seven national jurisdictions and two sub-national US jurisdictions implementing SSB taxes. This included Estonia, the Philippines, the UK, South Africa, the Republic of Ireland, Peru, Norway and two US cities, San Francisco and Seattle.

The UK dominated the headlines in April with the implementation of its long-awaited two-tiered 'sugar levy'⁽¹⁾. This tiered approach to taxing SSB, pioneered by the UK in 2016, was the dominant tax design adopted (outside the USA) in 2018, with five of the seven national jurisdictions adopting this design. In addition to the UK (18 p/l for SSB with 5–8 g added sugar/100 ml; 24 p/l for SSB with >8 g added sugar/100 ml), Estonia (10 cents/l for SSB with <5 g sugar/100 ml; 20 cents/l for SSB with 5–8 g sugar/100 ml; 30 cents/l for SSB with >8 g sugar/100 ml), South Africa (2.1 cents per gram of sugar per 100 ml for beverages above 4 g/100 ml), the Republic of Ireland (20 cents/l for SSB with 5–8 g sugar/100 ml; 30 cents/l for SSB with >8 g added sugar/100 ml) and Peru (17% for SSB with <6 g sugar/100 ml; 25% for SSB with >6 g sugar/100 ml) all implemented a tiered tax design.

Unlike the flat-rate tax design, which aims primarily to shift consumer behaviour away from sugary drinks, the tiered tax design additionally aims to work indirectly by incentivising manufacturers to reformulate their beverages to lower sugar content under the tax thresholds (and thus pay a lower tax rate or avoid the tax altogether). Indeed, this year Public Health England reported that the sugar content across all beverages subjected to the tax in the UK had been reduced by 11% between 2015 and 2017 (the

tax was announced in 2016), and average energy consumed in a single occasion fell by 6%⁽²⁾. While these types of taxes are highly regarded as they incentivise reformulation to lower-sugar beverages, there is currently no evidence on the most effective SSB tax design (type and magnitude) to reduce population consumption of SSB. Nevertheless, it has been recently argued that widespread adoption of the tiered SSB tax design has great potential for multinational beverage manufacturers to reduce sugar content across their global product range⁽³⁾. Importantly, the UK tax bill also includes sanctions for tax evasion under a criminal offence⁽⁴⁾ (which is a major barrier to lower-income countries where SSB tax adoption by government can often be relatively straightforward, but enforcement remains a barrier to effectiveness⁽⁵⁾).

This year also saw the Philippines become the second South-East Asian country (after Thailand) to adopt a tax on sweetened beverages. This 'Sweetened Beverage Tax' was implemented as part of more comprehensive tax reform package⁽⁶⁾. Under this excise tax both naturally and artificially sweetened beverages are taxed at ₱6 (\$US 0.11) per litre, while beverages containing high-fructose corn syrup are taxed at ₱12 (\$US 0.22) per litre. Somewhat controversially, 3-in-1 coffee products are excluded from the tax, despite containing approximately 9 g sugar/serving and a 400% increase in the Filipino instant coffee market size in five years between 2012 and 2017⁽⁷⁾. In 2013, sugar-sweetened coffees and teas comprised one-third of the volume SSB intake for Filipino adults, and their low cost appeals particularly to low-income consumers⁽⁸⁾.

Norway also joined the European SSB tax momentum this year. Norway has had a 'chocolates and sugar products' tax since 1922, intended as a fiscal measure to raise revenue from luxury goods. But in January the Norwegian government, in an attempt to reduce population-level sugar intake, increased the tax by 83% for ready-to-eat products and by 42% for both naturally and artificially sweetened beverages, resulting in a 2018 tax of 4.75 kroner/l. Unpredictably, opponents of the tax have responded with concerns of cross-border shopping to nearby Sweden, but for now, such concerns remain anecdotal.

The only new SSB tax commitment this year was from Bermuda, where a proposal to tax commercial and personal importers of sugar, candy and SSB and reduce the customs duty on the importation of water, was released for public consultation in January. Following consultation, where a majority of individuals and organisations

approved of the proposed policy, the first phase of the tax was implemented in October, comprising of a 50% duty on candies, sugary drinks and syrups (non-sugary beverages and 100% fruit juice are currently excluded from the tax). Revenue collected from the tax is to be earmarked for health promotion and disease prevention activities to encourage healthy lifestyles. The tax is set to be increased to a 75% duty in April 2019.

New evidence

This year SSB tax evaluations from Chile and Philadelphia were published. In 2014 Chile increased its existing tax on high-sugar SSB (≥ 6.25 g sugar/100 ml) from 13 to 18%, while lowering the tax on lower-sugar SSB (< 6.25 g sugar/100 ml) from 13 to 10%, resulting in an 8 percentage point tax difference between high- and low-sugar beverages. Two studies published in *PLoS Medicine* reported on an evaluation of this policy, with somewhat contradictory results. Using a pre-post design with household scanner data from one year pre- to one-year post-tax implementation (controlling for time-varying confounders, seasonality, and national and regional trends), Caro *et al.*⁽⁹⁾ revealed a modest reduction in the purchase of high-taxed SSB following tax implementation of 3.4% per capita per month compared with the counterfactual (what would have been expected in the post-tax period based on pre-tax trends). This change was greater among households with a higher socio-economic position (6.4% per capita per month reduction). Conversely, the purchase volume of low-taxed SSB increased by 10.7% and untaxed beverages increased by 3.1% compared with the counterfactual. The modest impact of the tax has been attributed to the relatively small (5%) tax modifications on high-taxed SSB and the minor changes in SSB prices (the price of carbonated high-taxed SSB was reported to have increased by 2.0% and the price of non-carbonated high-taxed SSB increased by 3.9%) following tax implementation.

Nakamura *et al.*⁽¹⁰⁾ used a time-series design with monthly sales data three years prior and one year after SSB tax implementation to examine change in monthly per capita sales volume of taxed beverages (controlling for seasonality, general time trend, temperature and economic fluctuations, as well as time-invariant household characteristics). The study reported very little change in the sales volume of all soft drinks purchased and in the sales volume of low-taxed beverages, but a significant 21.7% per capita reduction in the monthly purchase volume of high-taxed soft drinks (equivalent to a reduction of 766 ml of soft drink per person per month for an average household). Concordant with Caro *et al.*, this study also revealed a greater impact among households with a higher socio-economic position and higher pre-tax purchases of SSB. The higher impact of the SSB tax among households with a higher socio-economic position reported by both studies is in direct contrast to the

SSB tax evaluations in Mexico⁽¹¹⁾ and Berkeley, California⁽¹²⁾. This may reflect differing tax designs and/or contextual differences between the countries.

On 1 January 2017, Philadelphia implemented a beverage tax of 1.5 cents per ounce (1 US fl. oz = 29.57 ml) on both sugar- and artificially sweetened beverages. An evaluation of the tax this year⁽¹³⁾ represented the first evaluation of a beverage tax that is indiscriminate towards caloric and non-caloric sweetened beverages. The study evaluated the short-term (two months post-policy implementation) impact of the tax, using self-reported beverage intake, among a sample of 1514 residents in Philadelphia and 1253 residents in comparison cities. The authors report a 40% lower frequency of daily self-reported regular soda consumption, a 64% lower frequency of energy drink consumption and a 58% higher frequency of bottled water consumption among residents in Philadelphia compared with those residing in control cities⁽¹³⁾. There was no significant reduction in self-reported consumption of artificially sweetened beverages. Although longer-term studies are required to confirm these results, these initial findings highlight the positive impact of reducing SSB consumption when including both SSB and artificially sweetened beverages (a direct substitute of SSB) in tax design.

Reaching new heights of industry opposition

In July the Pennsylvania Supreme Court upheld Philadelphia's 1.5-cent-per-ounce tax on sodas and other sweetened beverages⁽¹⁴⁾, after a group of local businesses and consumers, along with the American Beverage Association, filed a lawsuit to block the tax in 2016^(15,16). A Pennsylvania State legislative bill to pre-empt taxes on food and beverages, which would also invalidate Philadelphia's tax, is currently pending but has not moved forward since it was approved by a legislative committee in May^(17,18).

But the American Beverage Association's strategy to pre-empt local efforts by influencing statewide laws has succeeded elsewhere. Similar legislation prohibiting municipalities from levying local taxes on foods and beverages did pass in the states of Michigan^(19,20), Arizona⁽²¹⁾ and, ironically, California^(22,23). Although California's legislation leaves taxes in Berkeley, San Francisco, Oakland, and Albany intact, it blocks any further local measures in the state of California for the next twelve years, including ones that had been slated for November ballots in Richmond and Santa Cruz⁽²²⁻²⁴⁾. At the time of writing of this editorial, such pre-emptive initiatives are on November ballots in the states of Washington⁽²⁵⁾ and Oregon⁽²⁶⁾.

In California, beverage companies succeeded in getting statewide pre-emptive legislation passed by coercing lawmakers. After spending over \$US 7 million to get an

initiative on November's ballot that would have made it more difficult for municipalities to raise taxes to pay for local services, they then offered to drop the initiative if lawmakers passed the ban on food and beverage taxes. 'Several top lawmakers said they opposed the measure banning soft drink taxes [...],' reported *The New York Times*, 'but many felt obliged to support it because they were so worried about the effects of the broader ballot initiative'⁽²³⁾.

Within a week, the California Medical Association and the California Dental Association announced a ballot measure for November 2020 that would implement a \$US 0.02/fluid ounce tax on SSB. In a joint statement, representatives of the two organizations declared:

'In the face of growing public support for local health taxes on sugar-sweetened beverages, the billion-dollar global soda industry last week put corporate profits ahead of public health and forced an ultimatum upon the leadership of California's state government.'

'Big Soda may have won a cynical short-term victory but, for the sake of our children's health, we cannot and will not allow them to undermine California's long-term commitment to health care and disease prevention.'

'[...] California's health care provider community is united behind ensuring that California voters have the opportunity to protect our children's well-being — not the profit margins of soda conglomerates.'⁽²⁷⁾

Their ballot measure will likely confront the same industry tactics that have been and continue to be successful in the USA, and elsewhere in the world. According to *The New York Times*, beverage companies have successfully opposed soda tax proposals in Colombia, Russia, Germany, Israel and New Zealand, and have actively courted government officials in Bosnia and Herzegovina, Ecuador, Portugal and regions of Spain⁽²⁸⁾.

Consolidation of the public health agenda

Although the counter forces for SSB taxes from industry were strong this year, consolidation of the public health agenda also made progress. To inspire and support more governments to adopt and implement SSB taxes, the World Cancer Research Fund published a comprehensive report with the key learnings from countries that have implemented SSB taxes⁽²⁹⁾. According to this report, countries and other jurisdictions interested in implementing an SSB tax should be strategic, carefully consider their local context, equip themselves with different types of evidence, develop a broad base of support, scrutinise their tax design and be prepared for push back. The report also includes key recommendations on how to

run and sustain campaigns for supporting the tax and how to successfully defend against arguments from opponents⁽²⁹⁾.

With the growing burden of non-communicable diseases (NCD) prominently on the political agenda in 2018, the public health community additionally emphasised the importance of effectively tackling the commercial determinants of health and promoting a life-course approach to prevention. In doing so, governments should take an integrated approach to public health taxation policies and adopt sugar, tobacco and alcohol taxes (STAX)⁽³⁰⁾, as part of a broader public health approach to effectively respond to the NCD epidemic and to achieve the relevant Sustainable Development Goals. Such initiatives could also generate substantial resources to invest in NCD prevention.

However, despite the mounting evidence and increasing momentum, fiscal policies and especially SSB taxes have been nearly absent from the international political NCD agenda. The Independent High-Level Commission on NCDs, which advises WHO on how to reduce premature deaths from NCD by a third by 2030, did not include any recommendations on SSB taxes in its 'time to deliver report', published in June 2018, ahead of the NCD high-level meeting in September⁽³¹⁾. Reportedly, despite the broad support from many commissioners, the panel failed to reach a consensus on this issue and, as a result, such a recommendation could not be included in the report. Unlike SSB taxes, recommendations for raising taxes on alcohol and tobacco were included. The view of the Independent High-Level Commission on NCDs is at odds with the WHO's previous strong recommendation of SSB taxation as an effective intervention to reduce sugar consumption and address the rising levels of NCD⁽³²⁾.

Similarly, the Draft Political Declaration of the third high-level meeting of the General Assembly on the prevention and control of NCD⁽³³⁾, held on 27 September 2018, contains several weaknesses in relation to regulation of the commercial determinants of health and fiscal policies⁽³⁴⁾. While the Declaration calls on the food industry to reformulate products to reduce salt, free sugars and saturated and industrially produced *trans* fats, use nutrition labelling on packaged foods and restrict the marketing of unhealthy foods and beverages to children, there is insufficient commitment to protect policy development from industry interference at the national and international levels. In addition, there is no recognition of price and taxation as effective public health policies and more broadly of the importance of healthy environments to enable people to make healthy choices. This is at odds with the campaigns conducted by a myriad of public health organisations in the lead up to the high-level meeting which featured those aspects very prominently⁽³⁵⁾. After the high-level meeting, the NCD Alliance and over 300 civil society organisations produced a statement in which they recognised, among other things, the lack of any references to fiscal policies like SSB taxes

as a clear shortcoming of the Declaration. In addition, they call on governments to go above and beyond the Declaration's vague and unambitious commitments⁽³⁶⁾.

Conclusion

Where 2018 was light on further global SSB tax commitments, it made up in SSB tax implementation and consolidation of the public health agenda. As we move into 2019 it will be important for the public health agenda to continue to strengthen so that action to tax SSB does not stall. Greater alignment of this agenda with the global NCD agenda will be important and overcoming industry opposition will be paramount. Lessons from the Chile SSB tax evaluation highlight the importance of adopting and implementing SSB taxes that are of sufficient magnitude to influence behaviour change at the population level. With many SSB taxes underway, evidence of effectiveness will continue to accumulate – the unique systems science approach to the UK sugar levy evaluation is much awaited.

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References

1. Treasury HM (2016) Policy paper: Budget 2016. <https://www.gov.uk/government/publications/budget-2016-documents/budget-2016> (accessed October 2018).
2. Public Health England (2018) Sugar reduction and wider reformulation programme: Report on progress towards the first 5% reduction and next steps. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/709008/Sugar_reduction_progress_report.pdf (accessed October 2018).
3. Hageaars LL, Jeurissen PP & Klazinga NS (2018) Sugar-sweetened beverage taxation in 2017: a commentary on the reasons behind their quick spread in the EU compared with the USA. *Public Health Nutr.* Published online: 31 August 2018. doi: 10.1017/S1368980018002008.
4. Treasury HM (2017) Spring Budget 2017: Policy costings. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/597335/PU2055_Spring_Budget_2017_web_2.pdf (accessed October 2018).
5. McDonald A (2015) Sugar-sweetened beverage tax in Pacific Island Countries and Territories: a discussion paper. <https://www.otago.ac.nz/wellington/otago665562.pdf> (accessed October 2018).
6. Republika Ng Philipinas (2018) What is TRAIN? Tax Reform for Acceleration and Inclusion. <http://www.dof.gov.ph/taxreform/index.php/beverages/> (accessed October 2018).
7. Euromonitor International (2018) Coffee in Asia Pacific. <https://www.euromonitor.com/coffee-in-asia-pacific/report> (accessed October 2018).
8. Food and Nutrition Research Institute, Philippines (2016) Annual Report: Sustaining the R & D gains for the nutritional well-being of every Juan and Juana. <http://www.fnri.dost.gov.ph/images/sources/AnnualReports/AR-2016.pdf> (accessed October 2018).
9. Caro JC, Corvalan C, Reyes M *et al.* (2018) Chile's 2014 sugar-sweetened beverage tax and changes in prices and purchases of sugar-sweetened beverages: an observational study in an urban environment. *PLoS Med* **15**, e1002597.
10. Nakamura R, Mirelman AJ, Cuadrado C *et al.* (2018) Evaluating the 2014 sugar-sweetened beverage tax in Chile: an observational study in urban areas. *PLoS Med* **15**, e1002596.
11. Colchero MA, Rivera-Dommarco J, Popkin BM *et al.* (2017) In Mexico, evidence of sustained consumer response two years after implementing a sugar-sweetened beverage tax. *Health Aff (Millwood)* **36**, 564–571.
12. Silver LD, Ng SW, Ryan-Ibarra S *et al.* (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 Med* **14**, e1002283.
13. Zhong Y, Auchincloss AH, Lee BK *et al.* (2018) The short-term impacts of the Philadelphia beverage tax on beverage consumption. *Am J Prev Med* **55**, 26–34.
14. McCrystal L (2018) Supreme Court upholds Philadelphia soda tax. <http://www2.philly.com/philly/news/soda-tax-philadelphia-supreme-court-pennsylvania-20180718.html> (accessed October 2018).
15. McCrystal L (2018) Supreme Court hears arguments on Philly soda tax. <http://www2.philly.com/philly/news/pennsylvania/soda-tax-supreme-court-philadelphia-kenney-beverage-20180515.html> (accessed October 2018).
16. Dale MC (2016) Beverage industry, others sue to block Philadelphia soda tax. <https://www.nbcphiladelphia.com/news/business/Beverage-Industry-Philadelphia-Soda-Tax-Lawsuit-393488341.html> (accessed October 2018).

17. Tanenbaum M (2018) Pennsylvania lawmaker introduces bill to invalidate Philly soda tax. <https://www.phillyvoice.com/pennsylvania-lawmaker-bill-kill-philly-soda-tax/> (accessed October 2018).
18. McCrystal L (2018) California banned new soda taxes. Could it happen in Pennsylvania? <http://www2.philly.com/philly/news/soda-tax-philadelphia-california-kenney-wolf-20180712.html> (accessed October 2018).
19. Oosting J (2017) Michigan Senate votes to ban local soda taxes. <https://www.detroitnews.com/story/news/politics/2017/10/04/michigan-senate-soda-tax-ban/106297524/> (accessed October 2018).
20. Associated Press (2017) Snyder signs bill to prohibit local food, beverage taxes. <http://www.wkar.org/post/gov-snyder-signs-bill-prohibit-local-food-beverage-taxes#stream/0> (accessed October 2018).
21. Gardiner D (2018) Arizona bans extra taxes on soda, sugary drinks. <https://www.azcentral.com/story/news/politics/legislature/2018/03/19/arizona-bans-extra-taxes-soda-sugary-drinks/433235002/> (accessed October 2018).
22. Dillon L (2018) California bans local soda taxes. <http://www.latimes.com/politics/la-pol-ca-soda-tax-ban-20180628-story.html> (accessed October 2018).
23. O'Connor A & Sanger-Katz M (2018) California, of all places, has banned soda taxes. How a new industry strategy is succeeding. <https://www.nytimes.com/2018/06/27/upshot/california-banning-soda-taxes-a-new-industry-strategy-is-stunning-some-lawmakers.html> (accessed October 2018).
24. Koseff A (2018) California bans local soda taxes through 2030 to avert industry-backed initiative. <https://www.sacbee.com/news/politics-government/capitol-alert/article213963039.html> (accessed October 2018).
25. AP NEWS (2018) Voters to decide whether to bar local soda taxes. <https://www.apnews.com/ba1dbe3d50d043ebb8b9dc269f07646f> (accessed October 2018).
26. Achen P (2018) Ban on food taxes would be a first. <https://portlandtribune.com/pt/9-news/398988-294000-ban-on-food-taxes-would-be-a-first> (accessed October 2018).
27. California Dental Association (2018) CDA, CMA file statewide soda tax measure for 2020. <https://www.cda.org/news-events/cda-cma-file-statewide-soda-tax-measure-for-2020> (accessed October 2018).
28. Jacobs A & Richtel M (2017) She took on Colombia's soda industry. Then she was silenced. <https://www.nytimes.com/2017/11/13/health/colombia-soda-tax-obesity.html> (accessed October 2018).
29. World Cancer Research Fund International (2018) Building momentum: lessons on implementing a robust sugar sweetened beverage tax. <https://www.wcrf.org/sites/default/files/building-momentum.pdf> (accessed October 2018).
30. Sugar, Tobacco, and Alcohol Taxes (STAX) Group (2018) Sugar, tobacco, and alcohol taxes to achieve the SDGs. *Lancet* **391**, 2400–2401.
31. World Health Organization (2018) *Time to Deliver: Report of the WHO Independent High-Level Commission on Non-communicable Diseases*. Geneva: WHO.
32. World Health Organization (2016) *Fiscal Policies for Diet and Prevention of Noncommunicable Diseases: Technical Meeting Report, 5–6 May 2015*. Geneva: WHO.
33. World Health Organization (2018) Draft Political Declaration of the third high-level meeting of the General Assembly on the prevention and control of non-communicable diseases. TIME TO DELIVER: Accelerating our response to address NCDs for the health and well-being of present and future generations. http://www.salute.gov.it/imgs/C_17_notizie_3501_listaFile_itemName_1_file.pdf (accessed October 2018).
34. NCD Alliance (2018) Draft Political Declaration for UN High-Level Meeting on NCDs lacks strength and ambition required to avoid a preventable global health crisis. <https://ncdalliance.org/news-events/news/draft-political-declaration-for-un-high-level-meeting-on-ncds-lacks-strength-and-ambition-required-to-avoid-a-preventable-global-health-crisis> (accessed October 2018).
35. Friends of the UN HLM on NCDs (2018) The how: a message for the UN high-level meeting on NCDs. *Lancet* **392**, e4–e5.
36. NCD Alliance (2018) ENOUGH: over 300 organisations and experts calls on world leaders to seize the 'do or die' moment of the third UN High-Level Meeting to address NCDs. <https://www.ncdalliance.org/news-events/news/enough-nearly-300-organisations-and-experts-calls-on-world-leaders-to-seize-the-'do-or-die'-moment-of-the-third-un-high-level-meeting-to-address-ncds> (accessed October 2018).