



© UNICEF/2022/Arinacs Wilander

Policy Brief

SUGAR-SWEETENED BEVERAGE TAXATION

04 - 28 Juli 2018

HAMBANGUN KLATEN

EDU

OMP



Indonesia has experienced a growing burden of non-communicable diseases (NCDs) over the past decades. As of 2018, NCDs account for three in four (73 per cent) deaths in the country [1]. In parallel, there has been a dramatic rise in overweight and obesity—a major risk factor for NCDs such as diabetes, cardiovascular diseases, and stroke.

Indonesia A key driver behind the rise in overweight, obesity and NCDs, is the shift towards diets characterized by excessive consumption of foods and beverages high in unhealthy fats, sugar and salt. Among these products are sugar-sweetened beverages (SSBs)—non-alcoholic beverages such as soft drinks, fruit/vegetable juices, energy and sports drinks, ready-to-drink tea and coffee, and flavoured milk that contain very high amounts of sugar—up to 10 teaspoons for a standard-sized can [2].

As a result of increased availability, cheap prices, and aggressive marketing campaigns, global SSBs consumption has grown dramatically—and Indonesia is no exception. This has serious implications for the health of all Indonesians—and especially children and adolescents, who are often the primary target of advertisements and promotions for these products.

As food and beverage prices affect daily purchasing decisions, taxation can be a powerful tool to reduce consumption of unhealthy products. This policy brief explains how implementing SSB taxes, as part of a holistic package of interventions to prevent overweight, obesity and NCDs, can help improve population health and safeguard children's right to a healthier future.



1. OVERWEIGHT, OBESITY AND DIET RELATED NCDs ARE ON THE RISE IN INDONESIA

The global prevalence of obesity has increased three-fold in the past four decades; as of 2016, an estimated 39 per cent of adults and 18 per cent of children and adolescents aged 5-19 worldwide were affected by overweight or obesity [3]. Overweight and obesity prevalence has also grown in Indonesia, in line with these global trends. Based on Basic Health Research Survey (Riskesdas) data, in 2018 one in three (35 per cent) adults over 18, one in five (20 per cent) children aged 5-12 and one in seven (15 per cent) adolescents aged 13-18 were living with overweight or obesity [4].

Overweight and obesity have many severe health implications. They increase the risk of NCDs, including heart disease, diabetes, and some types of cancer, and can have psychological and social impacts, such as weight stigma, social isolation, depression, low self-esteem, and poor educational attainment [5,6]. As the world has seen during the COVID-19 pandemic, children and adults living with overweight and obesity can also be more susceptible to infectious diseases [7,8].

In addition to having severe health consequences, overweight, obesity and related NCDs can have major

negative economic impacts. A modelling study suggests that in Indonesia NCDs will result in an estimated USD 4.47 trillion loss between 2012-2030 due to decreased labour supply and productivity, with additional impacts expected on household and health systems from increased treatment expenditures [9]. These economic damages can be reduced if effective prevention policies are implemented.





2. UNHEALTHY DIETS AND SSBs ARE A KEY DRIVER OF OVERWEIGHT, OBESITY AND NCDs

It is becoming harder and harder for Indonesians to access and afford healthy diets. Fuelled by the actions of a powerful food and beverage (F&B) industry, diets in the country have become increasingly unhealthy, particularly due to the overconsumption of ultra-processed foods and beverages that are high in unhealthy fats, sugar and salt, are easily available, convenient, cheap, and widely promoted [10–12].

Unhealthy diets are a key driver behind the rise in overweight and obesity, alongside insufficient physical activity. One major component of unhealthy diets is the excessive consumption of sugar-sweetened beverages (SSBs). These offer no nutritional benefit and have multiple health impacts, as they contribute to weight gain, increased risk of type 2 diabetes, heart disease and other chronic diseases and dental caries [13–15].

Consumption of SSBs has grown globally, and especially so in low and middle-income countries (LMICs) [16]. In Indonesia, between 2013–2021 annual per capita

consumption of some SSBs, including carbonated and non-carbonated soft drinks, sports and energy drinks, has grown 25 per cent (from 31 to 39 litres per capita/year) [17]. According to Riskesdas, in 2018 two in three children and adolescents aged 5–19 (66 per cent) and adults aged 20 and above (64 per cent) consumed SSBs once or more per day [4].

What's driving this high and growing rate of SSBs consumption? In addition to increasing evidence that these products can be addictive [18], SSBs are widely available and heavily promoted. But above all, they are cheap [19,20]. A study of SSB price trends highlighted how over the past few decades SSBs have become increasingly affordable, especially in LMICs, and how healthier alternatives (particularly bottled water) are typically more expensive [21]. Economic studies reveal that, as the price of SSBs decreases, purchase and consumption of these unhealthy beverages increases [22–24].



© UNICEF/2020/Fauzan Ijazah



3. WHY ARE SSB TAXES IMPORTANT?

Currently, the prices of SSBs do not reflect the external costs to society; through taxation, governments can recoup the direct and indirect costs arising from excessive SSBs consumption. Taxing SSBs has been identified as a “best buy” policy by the WHO [25] and is also recommended by UNICEF as an effective tool for preventing overweight and diet related NCDs, alongside measures such as front-of-pack nutritional labels and restrictions on unhealthy foods marketing [6]. A study modelling the impact of an SSB tax in Indonesia has found positive results in terms of decreased overweight, obesity, type 2 diabetes, stroke and ischaemic heart disease [26].

SSB taxes have five key objectives:

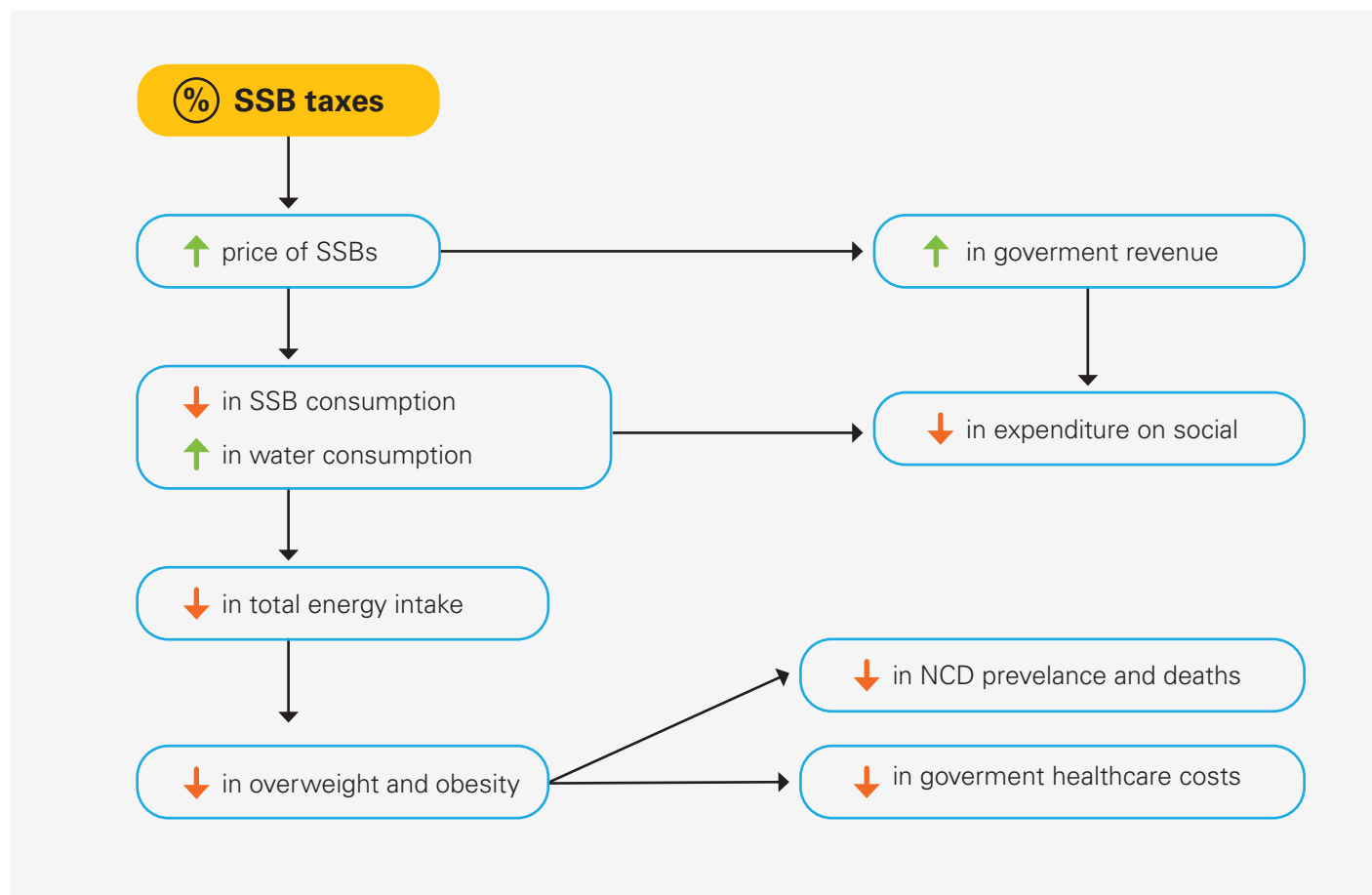
1. To increase the retail price of SSBs and reduce their purchase and consumption.
2. To encourage a shift to consumption of safe drinking water.

3. To shift societal norms by sending a powerful message that regular consumption of SSBs is not part of a healthy and nutritious diet.
4. To reduce sugar intake in the population.
5. To generate significant government revenue that may be reinvested into societal health and wellbeing.

More than 40 countries and jurisdictions around the world, including many in Asia-Pacific, have already implemented SSB taxes [27]. Consistent evidence across multiple countries shows that SSB taxes reduce purchase and consumption of sugary drinks, reduce sugar intake in the population, and often benefit lower income households the most, as in many context they have the highest consumption of SSBs [28,29] (see pp. 3,6).

Figure 1 shows the pathway by which SSB taxes influence consumption of SSBs and thus have beneficial effects on population health and economic outcomes..

Figure 1. How do SSB taxes work, and what are their benefits?





4. GLOBAL EVIDENCE ON THE BENEFITS OF SSB TAXES

SSB tax impact	Supporting evidence
Impact on consumption	<p>A 10% tax levied against SSBs has been shown to lead to an 8-10% reduction in purchase and consumption [20,28]. Evidence showing that SSB taxes have an overall positive effect on decreasing sales, import and consumption is available from several countries and jurisdictions, including Barbados [30], Catalonia (Spain) [31], Chile [32], Hungary [33], Mexico [24], Saudi Arabia [22], Thailand [34], Tonga [35], the United Kingdom [36] and several cities and counties in the United States [37–41].</p> <p>In addition to benefits from lower consumption, evidence from the United Kingdom also suggests that implementation of a tiered levy on SSBs containing >5g/100 ml successfully encouraged sugary drinks reformulation, with the share of SSBs exceeding this threshold declining from 49 to 15 per cent after implementation of the levy [42].</p> <p>Children are some of the greatest beneficiaries of SSB taxes. In response to the SSB tax in Mexico, declines in SSB consumption were greater for households with children [24]. There was also an increase in drinking water purchases particularly in low- and middle-income households and in urban areas. When an SSB tax was implemented in Thailand, the greatest decrease in SSB consumption was in children aged 6–14 [34].</p>
Impact on overweight and obesity	<p>A 20% tax on SSBs has been demonstrated to reduce the prevalence of overweight by 1-3% and the prevalence of obesity by 1-4% [43–46]. As children experience some of the largest reductions in SSB purchase and consumption in response to a tax, it is logical to assume that they will experience the most impact on overweight and obesity. Modelling has shown this to be the case in Thailand [34].</p>
Impact on health	<p>SSB taxes can significantly reduce the incidence of type-2 diabetes, heart disease, stroke, and premature mortality [44,47,48]. While children are less likely to see immediate reductions in NCDs from SSB taxes, childhood overweight and obesity increases the risk of overweight, obesity and NCDs later in life. Therefore, reductions in childhood SSB consumption due SSB taxes will have substantial health benefits as children grow older.</p>
Impact on socio-economic outcomes	<p>SSB taxes have resulted in substantial increases in government revenue [33,35,49,50]. There is evidence that many countries collected substantial revenues through SSB taxes, including Hungary (HUF 61.3 billion, or US\$ 218 million), Mexico (USD 1.2 billion over the first year), Tonga (T\$ 8.4 million in 2017-18, or US\$ 3.7 million) and the US (an average of US\$ 133.9 million per city across 7 cities). In best-practice scenarios, these funds are earmarked for public health and social programs. Meanwhile, no evidence of negative impact on employment was found in response to SSB taxes implemented in Chile [51], Mexico [52], and some US cities [53].</p>



5. WHAT ARE THE KEY CONSIDERATIONS FOR THE DESIGN OF SSB TAXES?

It is critical that governments choose the most effective and suitable type of SSB tax to guarantee maximum health and economic benefits. Consideration must be given to:

Products to tax

SSB taxes may be levied on either **a)** all products of a certain type (i.e. all non-alcoholic beverages containing free sugars and artificial sweeteners), or **b)** based on nutrient content criteria (e.g. products with $\geq 5\text{g}$ of added sugar per 100ml) [54]. It is recommended that all beverages containing free sugars are taxed, including carbonated and non-carbonated soft drinks, fruit/vegetable juices and drinks, liquid and powder concentrates, flavoured water, energy and sports drinks, ready-to-drink tea and coffee, and flavoured milk drinks. Sugar-free beverages containing artificial sweeteners should also be considered in scope for taxation as there is some evidence that these beverages may increase health risk, and to avoid product substitution to these beverages [55].

Tax rate

SSB tax rates must be large enough to effect a change in consumption: there is consensus that rates should be at least 20% to successfully change consumer behaviour [56–58].

Tax base

SSB taxes may be charged as either **a)** an *ad valorem* tax, applied according to the value of a food or beverage product, or **b)** a *specific* tiered tax with rates tied to the volume of sugar in a beverage [59,60]. This second option is increasingly popular as it penalises the beverages with the highest sugar content [27].



© UNICEF/2022/Arimacs Wilander



6. HOW SHOULD SSB TAXES BE IMPLEMENTED?

Key strategies to ensure that the implementation of SSB taxes is efficient and successful include:

Policy design considerations

- **Ensure that the objectives and products targeted by the policy are clear** to avoid confusion, identify potential substitutes for taxed products and facilitate monitoring and evaluation of policy success.
- **Consider international implications:** To avoid trade disputes, SSB taxes should not be seen to favour domestic over international products. For this reason, excise taxes are often recommended over import taxes.
- **Ensure complementary policies to enable access to free, safe drinking water,** the preferred alternative to SSBs, by investing/ earmarking funds to support water access – e.g., through water fountains in schools and public spaces.

Policy consultation process

- **Consult with a broad range of stakeholders** to ensure transparency in the policy development process, while also safeguarding against conflicts of interest and undue industry influence in the process.
- **Communicate to increase public awareness** of the positive health impact of SSB taxes, to increase support for policy implementation.

Policy support

- **Foster cooperation across sectors:** Cooperation between public health and tax or treasury sectors, backed by strong political leadership, is particularly important.
- **Highlight evidence of positive economic impacts:** Industry arguments against the implementation of SSB taxes can be addressed with evidence from studies showing net economic benefits from such policies.
- **Earmark tax revenue:** Earmarking or undertaking to use tax revenue and/or healthcare savings for expenditure on public health and social programs can increase public support for a measure.

Policy enforcement

- **Define enforcement procedures** to ensure sanctions for non-compliance with SSB taxes are imposed. Enforcement procedures in place for existing taxes, e.g., on tobacco and alcohol, may provide suitable frameworks.

Policy monitoring and evaluation

- **Establish monitoring and evaluation mechanisms** to determine policy success and refining policy design where necessary, including to mitigate any unintended socio-economic impact. Identify early the body responsible for monitoring and conduct baseline monitoring before implementation.



7. WHAT ARE THE ARGUMENTS USED BY THE FOOD INDUSTRY TO COUNTER SSB TAXES?

“SSB taxes are regressive and will cause low-income groups to spend money they don’t have”

Evidence for the impact of SSB taxes on different income groups varies. In general, those with the greatest potential to benefit are those groups that consume the most SSBs. In Spain [31] and Chile [61], SSB taxes were found to have a larger impact on consumption of higher income groups, whilst in Hungary [33] and Mexico [62] SSB taxes were found to have a greater impact on consumption in lower income groups because they had the highest levels of consumption at baseline. Whilst lower income households may notice the price impact the most – especially if they are high consumers, modelling studies show that they respond as intended and the health benefits and healthcare savings are also greater for lower income households [63]. It is likely that the only thing that SSB taxes hurt are corporate profits.

“SSB consumption and health are individual choices and responsibilities”

The predominance of unhealthy foods in the diet contrasts directly with the recommended diet for children. Today’s food environment where unhealthy foods are cheap and heavily promoted conveys a profoundly distorted picture of what foods should appeal to, and be consumed by,

children. The widespread availability of cheap SSBs directly undermines the efforts of parents and other caregivers to encourage healthy eating, with significant health and economic costs to individuals and society. The global healthcare costs attributed to obesity were estimated at more than USD 990 billion per year [64]. These costs are disproportionately borne by the government and subsequently taxpayers and broader society, not just individuals.

“SSB taxes will reduce employment”

There is no evidence that SSB taxes lead to job losses as jobs are created in other sectors when consumption patterns change. No evidence of negative impact on employment was found in response to SSB taxes implemented in Chile [51], Mexico [52], and certain US cities [53].

“Overweight, obesity and unhealthy diets are complex problems that require complex solutions”

A suite of policy solutions is required to address unhealthy diets, childhood overweight and obesity. SSB taxes are a common and highly recommended component of a broad approach to addressing this issue [25].



8. EXAMPLES OF SUCCESSFUL SSB TAXES FROM AROUND THE WORLD



Mexico

The Mexican government introduced an excise tax of one peso per litre (10%) for all SSBs in January 2014. Thanks to the tax, the price of SSBs in Mexico rose by approximately 1 peso (or 11%). Consequently, in 2014 their sales declined by an average 6-8%, while those of untaxed beverages increased by 4-6%, primarily driven by plain water. The greatest impacts were recorded for households of lower socioeconomic position, located in urban areas, and with children.

The introduction of the tax was preceded by social mobilisation campaigns that raised awareness on the link between SSBs consumption, obesity and diabetes and called for their taxation. Evidence suggests that the campaigns, and the framing of the tax as a revenue generating measure, were key to overcome industry opposition and gain public and government support for the policy.

According to the Mexican government, the SSB tax generated approximately USD 1.2 billion over its first year (2014). There was an undertaking to earmark the revenue from the tax for programs to address diabetes and investment in water fountains in schools, but it was not included in the actual law. In the years following the tax there has been no significant change in employment in Mexico, either overall or within the beverage industry.



United Kingdom

The United Kingdom's soft drinks industry levy was announced in 2016 and came into force in April 2018. The tax rate is lower for soft drinks with less sugar content per litre; drinks with no added sugar are exempt. Between the announcement and introduction, around 50 per cent of manufacturers reported reducing sugar levels in their products.

After introduction of the levy, the volume of purchased SSBs that were subject to it (i.e. containing >5g of sugar per 100ml) decreased by 50 per cent, with greater reductions seen for beverages that were subject to a higher levy rate (i.e. higher-sugar beverages), whose price increased by 7.5p on average, a tax pass-through rate of 31%.

Revenues were estimated at GBP 240 million (USD 308 million) a year, aimed to reduce childhood obesity with portions to be used for school sports facilities and physical education equipment.



Philippines

The Philippines introduced SSB taxes in January 2018, raising prices by 14 per cent and aiming to reduce obesity and raise revenues for government infrastructure projects, including sports facilities, public schools and drinking water in public places.

The taxes apply to drinks that combine non-caloric sweeteners with sugar/high-fructose corn syrup and are levied by product volume rather than sugar content – so there is little incentive for manufacturers to reformulate products. When sales dropped significantly during the first six months after implementation, beverage companies increased retail prices.



© UNICEF/2022/Arimacs Wilander

REFERENCES

1. WHO. Noncommunicable disease country profiles 2018. Geneva, Switzerland: World Health Organization 2018.
2. WHO. Taxes on sugary drinks: Why do it? *Together Let's Beat NCDs Info Broch* 2017.
3. WHO. Overweight and obesity. 2021. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
4. Ministry of Health - RI. Laporan Nasional Riskesdas 2018. 2018.
5. Daniels SR. Complications of obesity in children and adolescents. *Int J Obes* 2009;33:S60–5. doi:10.1038/ijo.2009.20
6. UNICEF. Prevention of overweight and obesity in children and adolescents. New York: 2019. <https://www.unicef.org/documents/prevention-overweight-and-obesity-children-and-adolescents>
7. Soeroto AY, Soetedjo NN, Purwiga A, et al. Effect of increased BMI and obesity on the outcome of COVID-19 adult patients: A systematic review and meta-analysis. *Diabetes Metab Syndr Clin Res Rev* 2020;14:1897–904. doi:10.1016/j.dsx.2020.09.029
8. Yang J, Hu J, Zhu C. Obesity aggravates COVID-19: A systematic review and meta-analysis. *J Med Virol* 2021;93:257–61. doi:10.1002/jmv.26237
9. Bloom DE, Chen S, McGovern M, et al. The Economics of Non-Communicable Diseases in Indonesia. 2015. http://www3.weforum.org/docs/WEF_The_Economics_of_non_Disease_Indonesia_2015.pdf
10. Osei-Assibey G, Dick S, MacDiarmid J, et al. The influence of the food environment on overweight and obesity in young children: A systematic review. *BMJ Open* 2012;2. doi:10.1136/bmjopen-2012-001538
11. Hirvonen K, Bai Y, Headey D, et al. Affordability of the EAT–Lancet reference diet: a global analysis. *Lancet Glob Heal* 2020;8:e59–66. doi:10.1016/S2214-109X(19)30447-4
12. De Brauw A, Van Den Berg M, Brouwer ID, et al. Food System Innovations for Healthier Diets in Low and Middle-Income Countries CGIAR Research Program on Agriculture for Nutrition and Health (A4NH). 2019.
13. Malik VS, Hu FB. Sugar-sweetened beverages and health: Where does the evidence stand? *Am J Clin Nutr* 2011;94:1161–2. doi:10.3945/ajcn.111.025676
14. Malik VS, Pan AA, Willett WC, et al. Sugar-sweetened beverages and weight gain in children and adults : *Am J Clin Nutr* 2013;98:1084–102. doi:10.3945/ajcn.113.058362.1
15. Marshall TA. Preventing dental caries associated with sugar-sweetened beverages. *J Am Dent Assoc* 2013;144:1148–52. doi:10.14219/jada.archive.2013.0033
16. Baker P, Machado P, Santos T, et al. Ultra-processed foods and the nutrition transition: Global, regional and national trends, food systems transformations and political economy drivers. *Obes Rev* 2020;21:1–22. doi:10.1111/obr.13126
17. Statista. Soft drinks, Indonesia. 2021. <https://www.statista.com/outlook/cmo/non-alcoholic-drinks/soft-drinks/indonesia#volume> (accessed 13 Apr 2022).
18. Falbe J, Thompson HR, Patel A, et al. Potentially addictive properties of sugar-sweetened beverages among adolescents. *Appetite* 2019;133:130–7. doi:10.1016/j.appet.2018.10.032
19. Backholer K, Sarink D, Beauchamp A, et al. The impact of a tax on sugar-sweetened beverages according to socio-economic position: A systematic review of the evidence. *Public Health Nutr* 2016;19:3070–84. doi:10.1017/S136898001600104X
20. Andreyeva T, Long MW, Brownell KD. The impact of food prices on consumption: A systematic review of research on the price elasticity of demand for food. *Am J Public Health* 2010;100:216–22. doi:10.2105/AJPH.2008.151415
21. Blecher E, Liber AC, Drope JM, et al. Global Trends in the Affordability of Sugar-Sweetened Beverages, 1990–2016. *Prev Chronic Dis* 2017;14:1–13. https://www.cdc.gov/pcd/issues/2017/16_0406.htm
22. Alsukait R, Wilde P, Bleich SN, et al. Evaluating Saudi Arabia's 50% carbonated drink excise tax: Changes in prices and volume sales. *Econ Hum Biol* 2020;38:100868. doi:10.1016/j.ehb.2020.100868
23. Smed S, Scarborough P, Rayner M, et al. The effects of the Danish saturated fat tax on food and nutrient intake and modelled health outcomes: An econometric and comparative risk assessment evaluation. *Eur J Clin Nutr* 2016;70:681–6. doi:10.1038/ejcn.2016.6
24. Arantxa Colchero M, Salgado JC, Unar-Munguía M, et al. Changes in prices after an excise tax to sweetened sugar beverages was implemented in Mexico: Evidence from Urban Areas. *PLoS One* 2015;10:1–11. doi:10.1371/journal.pone.0144408
25. WHO. Tackling NCDs. *World Heal Organ* 2017;17:28. <http://apps.who.int/iris/bitstream/10665/259232/1/WHO-NMH-NVI-17.9-eng.pdf?ua=1>
26. Bourke EJ, Veerman JL. The potential impact of taxing sugar drinks on health inequality in Indonesia. *BMJ Glob Heal* 2018;3:1–8. doi:10.1136/bmjgh-2018-000923
27. World Bank Group. Taxes on sugar-sweetened beverages: international evidence and experiences. 2020.
28. Teng AM, Jones AC, Mizdrak A, et al. Impact of sugar-sweetened beverage taxes on purchases and dietary intake: Systematic review and meta-analysis. *Obes Rev* 2019;20:1187–204. doi:10.1111/obr.12868
29. Wright A, Smith KE, Hellowell M. Policy lessons from health taxes: A systematic review of empirical studies. *BMC Public Health* 2017;17:1–14. doi:10.1186/s12889-017-4497-z
30. Alvarado M, Unwin N, Sharp SJ, et al. Assessing the impact of the Barbados sugar-sweetened beverage tax on beverage sales: An observational study. *Int J Behav Nutr Phys Act* 2019;16:1–11. doi:10.1186/s12966-019-0776-7
31. Vall Castelló J, Lopez Casasnovas G. Impact of SSB taxes on sales. *Econ Hum Biol* 2020;36. doi:10.1016/j.ehb.2019.100821
32. Nakamura R, Mirelman AJ, Cuadrado C, et al. Evaluating the 2014 sugar-sweetened beverage tax in Chile: Observational evidence from urban areas. *Glob Heal Econ Shap Heal Policy Low- Middle-income Ctries* 2020;:287–301. doi:10.1142/9789813272378_0012
33. Bíró A. Did the junk food tax make the Hungarians eat healthier? *Food Policy* 2015;54:107–15. doi:10.1016/j.foodpol.2015.05.003
34. Phulkard S, Thongcharoenchupong N, Chamratrithirong A, et al. Changes in Population-Level Consumption of Taxed and Non-Taxed Sugar-Sweetened Beverages (SSB) after Implementation of SSB Excise Tax in Thailand: A Prospective Cohort Study. *Nutrients* 2020;12:3294. doi:10.3390/nu12113294

35. Teng A, Puloka V, Genç M, *et al.* Sweetened beverage taxes and changes in beverage price, imports and manufacturing: Interrupted time series analysis in a middle-income country. *Int J Behav Nutr Phys Act* 2020;17:1–12. doi:10.1186/s12966-020-00980-1
36. Pell D, Mytton O, Penney TL, *et al.* Changes in soft drinks purchased by British households associated with the UK soft drinks industry levy: Controlled interrupted time series analysis. *BMJ* 2021;372:11–6. doi:10.1136/bmj.n254
37. Silver LD, Ng SW, Ryan-ibarra S, *et al.* Silver, L. D., Ng, S. W., Ryan-Ibarra, S., Smith Taillie, L., Induni, M., Miles, D. R., Poti, J. M., Popkin, B. M. Changes in prices, sales, consumer spending, and beverage consumption one year after a tax on sugar-sweetened beverages in Berkeley, Califor. *PLoS Med* 2017;14:1–19.
38. Powell LM, Leider J. The impact of Seattle's Sweetened Beverage Tax on beverage prices and volume sold. *Econ Hum Biol* 2020;37:100856. doi:10.1016/j.ehb.2020.100856
39. Cawley J, Frisvold D, Hill A, *et al.* Oakland's sugar-sweetened beverage tax: Impacts on prices, purchases and consumption by adults and children. *Econ Hum Biol* 2020;37:100865. doi:10.1016/j.ehb.2020.100865
40. Roberto CA, Lawman HG, Levasseur MT, *et al.* Association of a Beverage Tax on Sugar-Sweetened and Artificially Sweetened Beverages with Changes in Beverage Prices and Sales at Chain Retailers in a Large Urban Setting. *JAMA - J Am Med Assoc* 2019;321:1799–810. doi:10.1001/jama.2019.4249
41. Powell LM, Leider J. Evaluation of Changes in Beverage Prices and Volume Sold following the Implementation and Repeal of a Sweetened Beverage Tax in Cook County, Illinois. *JAMA Netw Open* 2020;3:1–10. doi:10.1001/jamanetworkopen.2020.31083
42. Scarborough P, Adhikari V, Harrington RA, *et al.* Impact of the announcement and implementation of the UK Soft Drinks Industry Levy on sugar content, price, product size and number of available soft drinks in the UK, 2015–19: A controlled interrupted time series analysis. *PLoS Med* 2020;17:e1003025. doi:10.1371/journal.pmed.1003025
43. Briggs ADM, Mytton OT, Kehlbacher A, *et al.* Overall and income specific effect on prevalence of overweight and obesity of 20% sugar sweetened drink tax in UK: Econometric and comparative risk assessment modelling study. *BMJ* 2013;347:1–17. doi:10.1136/bmj.f6189
44. Veerman JL, Sacks G, Antonopoulos N, *et al.* The impact of a tax on sugar-sweetened beverages on health and health care costs: A modelling study. *PLoS One* 2016;11:1–10. doi:10.1371/journal.pone.0151460
45. Phonsuk P, Vongmongkol V, Ponguttha S, *et al.* Impacts of a sugar sweetened beverage tax on body mass index and obesity in Thailand: A modelling study. *PLoS One* 2021;16:1–15. doi:10.1371/journal.pone.0250841
46. Schwendicke F, Stolpe M. Taxing sugar-sweetened beverages: Impact on overweight and obesity in Germany. *BMC Public Health* 2017;17:14–8. doi:10.1186/s12889-016-3938-4
47. Hangoma P, Bulawayo M, Chewe M, *et al.* The potential health and revenue effects of a tax on sugar sweetened beverages in Zambia. *BMJ Glob Heal* 2020;5:1–9. doi:10.1136/bmjgh-2019-001968
48. Wilde P, Huang Y, Sy S, *et al.* Cost-effectiveness of a US national sugar-sweetened beverage tax with a multistakeholder approach: Who pays and who benefits. *Am J Public Health* 2019;109:276–84. doi:10.2105/AJPH.2018.304803
49. Carriedo A, Koon AD, Encarnación LM, *et al.* The political economy of sugar-sweetened beverage taxation in Latin America: lessons from Mexico, Chile and Colombia. *Global Health* 2021;17:1–14. doi:10.1186/s12992-020-00656-2
50. Krieger J, Magee K, Hennings T, *et al.* How sugar-sweetened beverage tax revenues are being used in the United States. *Prev Med Reports* 2021;23:101388. doi:10.1016/j.pmedr.2021.101388
51. Paraje G, Colchero A, Wlasiuk JM, *et al.* The effects of the Chilean food policy package on aggregate employment and real wages. *Food Policy* 2021;100:102016. doi:10.1016/j.foodpol.2020.102016
52. Guerrero-López CM, Molina M, Colchero MA. Employment changes associated with the introduction of taxes on sugar-sweetened beverages and nonessential energy-dense food in Mexico. *Prev Med (Baltim)* 2017;105:S43–9. doi:10.1016/j.ypmed.2017.09.001
53. Powell LM, Wada R, Persky JJ, *et al.* Employment impact of sugar-sweetened beverage taxes. *Am J Public Health* 2014;104:672–7. doi:10.2105/AJPH.2013.301630
54. Harding M, Lovenheim M. The effect of prices on nutrition: Comparing the impact of product- and nutrient-specific taxes. *J Health Econ* 2017;53:53–71. doi:10.1016/j.jhealeco.2017.02.003
55. Russell C, Grimes C, Baker P, *et al.* The drivers, trends and dietary impacts of non-nutritive sweeteners in the food supply: A narrative review. *Nutr Res Rev* 2021;34:185–208. doi:10.1017/S0954422420000268
56. Afshin A, Peñalvo JL, Gobbo L Del, *et al.* The prospective impact of food pricing on improving dietary consumption: A systematic review and meta-analysis. *PLoS One* 2017;12. doi:10.1371/journal.pone.0172277
57. Colchero MA, Popkin BM, Rivera JA, *et al.* Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: Observational study. *BMJ* 2016;352:1–9. doi:10.1136/bmj.h6704
58. Waterlander WE, Jiang Y, Nghiem N, *et al.* The effect of food price changes on consumer purchases: a randomised experiment. *Lancet Public Heal* 2019;4:e394–405. doi:10.1016/S2468-2667(19)30105-7
59. World Cancer Research Fund International. Building momentum : lessons on implementing a robust sugar sweetened beverage tax. *World Cancer Res Fund Int* 2018;:1–32. <https://www.wcrf.org/sites/default/files/PPA-Building-Momentum-Report.pdf>
60. WHO. Fiscal policies for diet and the prevention of noncommunicable diseases. *WHO Reg Off Eur* 2015;:36. <http://www.who.int/diet-physicalactivity/publications/fiscal-policies-diet-prevention/en/>
61. Caro JC, Corvalán C, Reyes M, *et al.* 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* 2018;15:1–19. doi:10.1371/journal.pmed.1002597
62. Colchero MA, Guerrero-López CM, Molina M, *et al.* Beverages sales in Mexico before and after implementation of a sugar sweetened beverage tax. *PLoS One* 2016;11:4–11. doi:10.1371/journal.pone.0163463
63. Lal A, Mantilla-Herrera AM, Veerman L, *et al.* Modelled health benefits of a sugar-sweetened beverage tax across different socioeconomic groups in Australia: A cost-effectiveness and equity analysis. *PLoS Med* 2017;14:1–17. doi:10.1371/journal.pmed.1002326
64. World Obesity Federation. Calculating the costs of the consequences of obesity 2019. <https://www.worldobesity.org/resources/resource-library/calculating-the-costs-of-the-consequences-of-obesity>.

UNITED NATIONS CHILDREN'S FUND (UNICEF)

World Trade Center 2, 22nd Floor,
Jl. Jend. Sudirman Kav. 31,
Jakarta, 12920, Indonesia.
Tel: +62 21 5091 6100
Email: jakarta@unicef.org
Website: www.unicef.or.id

Ministry of Health

Directorate General of Disease Prevention and Control
Directorate of Non-Communicable Diseases Prevention and Control
Prof. Dr. Sujudi Building, 11th Floor
Jl. HR Rasuna Said Block X.5 Lot 4-9 Kuningan,
Jakarta, 12950, Indonesia.
Tel: +62 21 5201590
Email: tu.p2ptm@kemkes.go.id
Website: <https://p2ptm.kemkes.go.id/>

Ministry of National Development Planning/Bappenas

Deputy of Human, Community and Cultural Development
Directorate of Public Health and Nutrition
Jl. Taman Suropati No. 2,
Jakarta, 10310, Indonesia.
Tel: +62 21 31934379
Email: kgm@bappenas.go.id
Website: <https://www.bappenas.go.id/>