

Knowledge Brief

Health, Nutrition and Population Global Practice

TAXES ON SUGAR-SWEETENED BEVERAGES: INTERNATIONAL EVIDENCE AND EXPERIENCES

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KEY MESSAGES:

- Sugar-sweetened beverages (SSB) are a major source of excess sugar and energy in diets
- There is strong evidence linking excess sugar and SSB consumption to a range of adverse health effects, including obesity, type 2 diabetes, and cardiovascular disease
- Many countries are choosing to tax SSB as a fiscal policy for health, and more than 40 taxes have been introduced since 2014 at city-, region-, and country-level.

Introduction

Taxes on SSB are an increasingly popular fiscal policy for health. This brief summarizes the latest evidence on SSB tax implementation and effectiveness to support governments who are considering, or are in the process of developing, an SSB tax. Further details and references can be found in the accompanying report (World Bank 2020).

Why tax SSB?

SSB are a key contributor to excess sugar and dietary energy intakes in countries around the world (Pereira et al 2015; Sánchez-Pimienta et al 2016; Marriot et al 2019), yet provide little-to-no nutritional value. Their consumption is strongly linked to a range of adverse health effects including tooth decay, excess weight gain, and increased risk of cardiovascular disease, cancer, and type 2 diabetes (Table 1). An estimated 184,000 deaths and 8.5 million disability-adjusted life years worldwide were attributed to SSB consumption in 2010 (Singh et al. 2015).

The substantial health and social costs imposed by SSB on individuals (internalities) and on others (externalities)

are not reflected in the prices charged for SSB. Corrective taxes can help to incentivise consumers to reduce their consumption to a level that takes these costs into account. There is strong evidence that corrective taxes have effectively reduced consumption of other harmful products, such as tobacco and alcohol.

BOX 1. WHAT ARE SSB?

SSB are defined as: non-alcoholic beverages containing added caloric sweeteners, such as sucrose, high-fructose corn syrup, or fruit juice concentrates. This includes carbonated soft drinks, energy drinks, sports drinks, concentrates or syrups, less than 100% fruit or vegetable juices such as juice drinks or nectars, ready-to-drink teas and coffees, sweetened waters, and sweetened milk-based drinks.

Sugary drinks, a related term, encompasses all types of beverages containing free sugars, including those naturally present, such as in 100% fruit juices.

Both definitions exclude low/zero-calorie beverages (artificially sweetened beverages) containing intense sweeteners such as aspartame, sucralose, saccharin, or stevia.

Table 1. SUMMARY OF EVIDENCE OF HEALTH RISKS LINKED TO SSB

Health risks	Nature of evidence
Weight gain, overweight, obesity	Strong, consistent evidence of direct, causal relationship
Type 2 diabetes	Strong positive association (independent and through weight gain)
Tooth decay	Strong positive exposure-response relationship
Metabolic syndrome	Positive association (independent and through weight gain)
Cardiovascular risk factors and outcomes	Strong positive association with coronary heart disease (independent and mediated by body mass index); association with stroke less clear
Cancer	Positively associated with increased risk of at least 12 cancers (independent and through weight gain)
All-cause and cause-specific mortality	Positively associated with higher risk of death from all causes. Linked to 184,000 deaths worldwide: 76% in low- and middle-income countries and 72% related to type 2 diabetes

Source: World Bank 2020.

In many parts of the world, SSB are cheap, accessible, heavily marketed, and widely consumed. SSB sales volumes are stagnating in some high-income countries (albeit at very high levels) but are growing strongly in low- and middle-income countries (Baker et al 2020; World Bank 2020) (Figure 1).

SSB taxes around the world

Global momentum on SSB taxes has grown considerably since 2014, when Mexico introduced a tax on SSB against fierce opposition. More than 40 SSB taxes have been introduced since then, including at city-, region-, and country-level. SSB taxes are now in effect in more than 50 jurisdictions worldwide (World Bank 2020, Figure 2). Although some jurisdictions have opted to raise import duties or goods-and-services type (GST) taxes (e.g., value-added tax, VAT) on SSB, excise taxes are the most commonly used instrument to tax SSB. Excise taxes are levied on a particular product, typically at the point of manufacture or distribution. Excise taxes can be specific (based on the volume or sugar content of the SSB) or ad valorem (based on a percentage of product value).

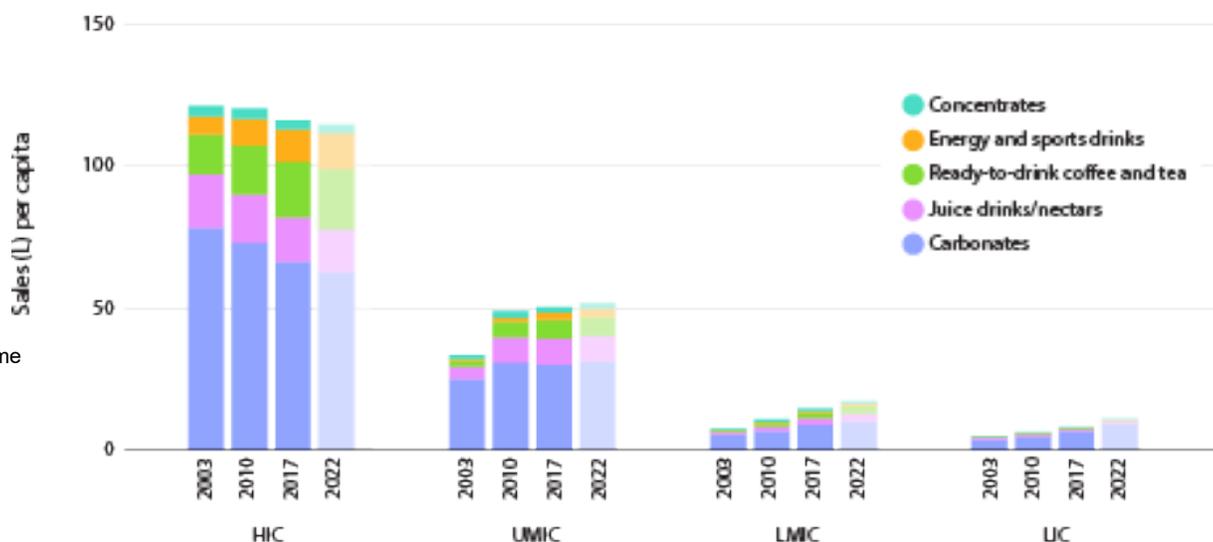
Specific taxes can utilize tiered or sliding-scale designs to apply different tax rates depending on volume or sugar content. Single-tier volume-based taxes are the most common design of excise taxes introduced on SSB to date, with nearly half (46%) of current excise taxes using this design, although sugar-based taxes are considered to offer maximum health benefits because they directly target the harmful ingredient (World Bank 2020).

How SSB taxes work

Designing and implementing a successful SSB tax requires a clear understanding of the pathways of effects through which SSB taxes can be expected to lead to specific outcomes. Figure 3 presents a theory of change outlining these pathways and the four key mechanisms through which SSB taxes operate:

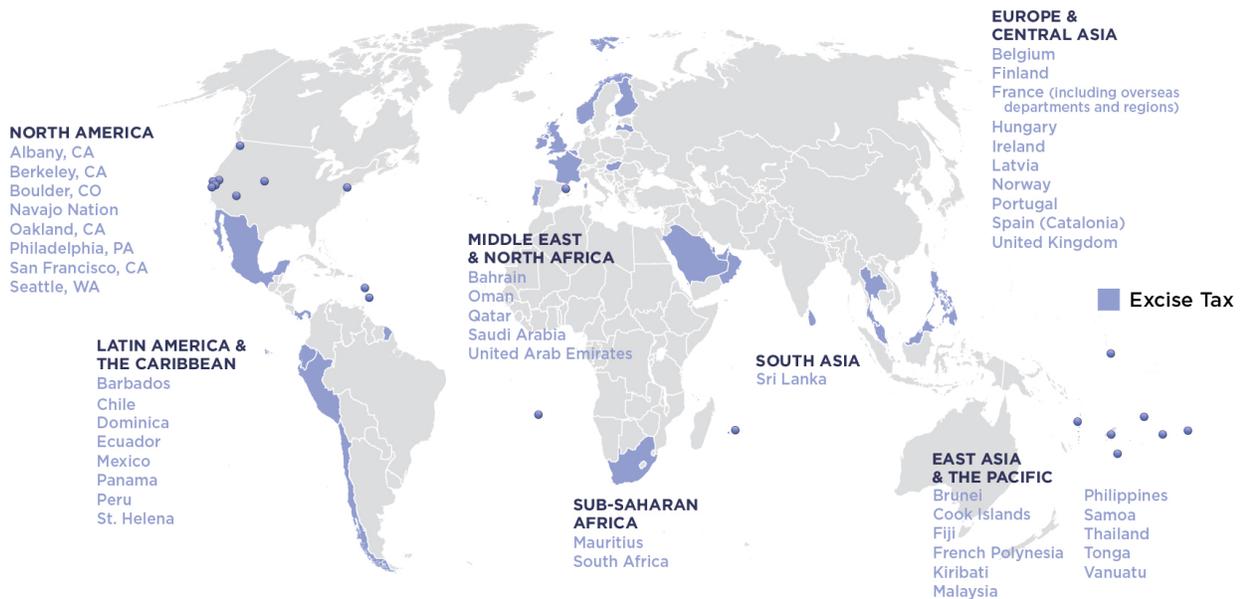
1. Increasing retail prices
2. Raising public awareness
3. Incentivizing non-price industry responses
4. Mobilizing government revenue

FIGURE 1. SSB SALES BY COUNTRY INCOME GROUP, 2003-2017, WITH PROJECTIONS TO 2022



Source: Euromonitor Passport
 Notes: HIC = high-income Countries; UMIC = upper-middle-income countries; LMIC = lower-middle-income countries; LIC = lower-income countries

FIGURE 2. EXCISE TAXES ON SSB WORLDWIDE



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Evidence for each mechanism is summarized below.

1. INCREASING RETAIL PRICES

By raising retail prices, SSB taxes aim to encourage consumers to reassess their preference for SSB at point-of-purchase (Hawkes et al. 2015). Food and beverage prices at point-of-purchase have a powerful influence on consumer behavior. Taxes that are visible to consumers (reflected in the shelf price) and that raise retail prices by at least 20 percent across a broad range of beverages are likely to be most effective at discouraging purchasing (Afshin et al. 2017; Waterlander et al 2019).

One important measure of the effectiveness of an SSB tax is the pass-through rate; that is, the extent to which a tax is passed on to consumers in the form of retail price increases (as opposed to being absorbed, wholly or in part, by supply chain actors). Internationally, experiences with SSB tax implementation show that retail prices do increase with SSB taxes, although pass-through rates vary from below 50% to almost 100% (World Bank 2020).

2. RAISING PUBLIC AWARENESS

A well-designed and visible SSB tax can disincentivize consumption by raising awareness about the detrimental effects of sugar and SSB consumption, and by signaling that the government views this issue as a priority. This effect on public awareness can start while an SSB tax proposal is still being considered and debated. Even if a tax proposal is ultimately unsuccessful, the process can still

have an effect on public awareness and opinion, and potentially consumption behavior, which can lay the groundwork for future attempts. This mechanism has not been studied widely, but there is some evidence for increased public awareness from Hungary, Mexico, and California (World Bank 2020).

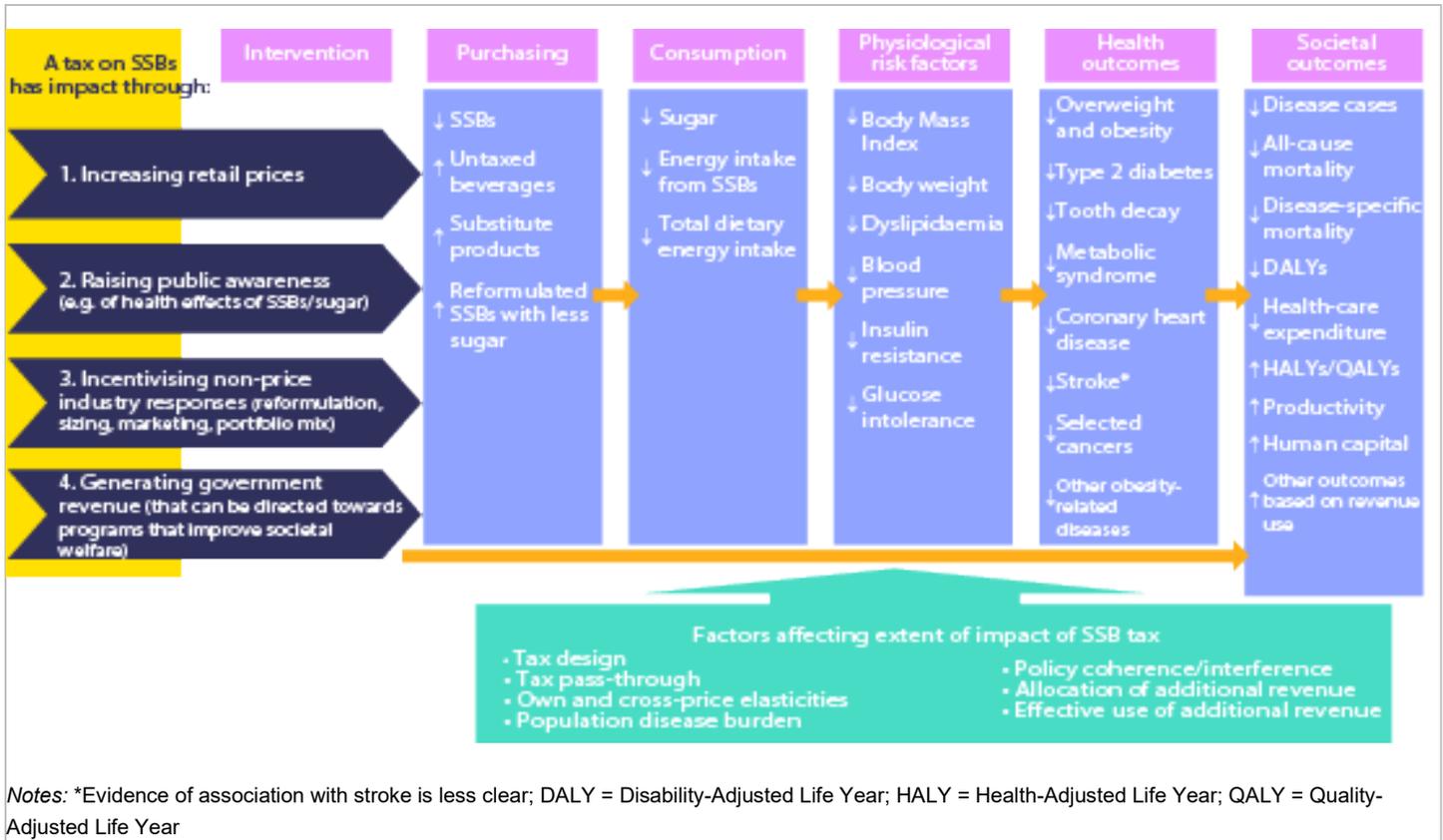
3. INCENTIVIZING NON-PRICE INDUSTRY RESPONSES

Well-designed SSB taxes can stimulate and incentivize desirable industry responses, such as reformulation of SSB to lower the sugar content, along with changes to product portfolios, packaging sizes, and marketing strategies. Tiered taxes with a strong design and sugar-based taxes provide the greatest incentive for reformulation because they encourage manufacturers to lower the sugar content of their portfolios to avoid higher tax rates. Evaluations of tiered volume-based taxes introduced in the UK and Portugal, as well as South Africa’s sugar-based levy, identified significant reformulation responses (Goiana-da-Silva et al. 2018, Roache and Gostin 2017; Scarborough, Adhikari, and Harrington 2020; Stacey et al. 2019). For example, in the UK, there was an average 11 percent reduction in sugar content in SSB before the tax was even introduced, with an average 29% reduction under the tax (Public Health England 2018, 2019).

4. MOBILIZING DOMESTIC REVENUE

As a ‘fiscal policy for health’, SSB taxes are primarily aimed at discouraging consumption rather than raising

FIGURE 3. SSB TAX THEORY OF CHANGE



revenue. The revenue generated by SSB taxes can be “soft earmarked” for welfare-generating programs, which, when used alongside the public health argument, can boost public and political support for a tax. Revenue may also be used to compensate for any transitional costs or short-term displacement of productivity in affected sectors.

International experiences have shown that revenue generation is difficult to predict with any precision. This is particularly the case when a tax is successful in reducing sales and/or incentivizing product reformulation. For example, despite evidence of reformulation, South Africa’s SSB levy reportedly exceeded forecasts, generating around US\$140 million or US\$2.5 per capita in the first year (Stacey et al. 2019), whereas Portugal’s SSB tax generated US\$90 million, or US\$9 per capita (Goiana-da-Silva et al. 2018).

Failure to generate predicted revenue may be used later by opponents to undermine support for a tax, as was the case in Philadelphia, therefore it is prudent to avoid making overly optimistic claims for revenue generation.

Evidence that SSB taxes work

EFFECTS ON SALES/PURCHASING

Evaluations of implemented SSB taxes have typically collected sales and/or purchasing data as proxy measures

for changes in consumption. Although imperfect, sales and purchase data can provide a reasonable picture of population-level changes in consumption, provided the data sets are sufficiently large (Bandy et al. 2019).

International experiences show that, when an SSB tax is passed through, it can reduce sales and purchases of taxed beverages. Higher taxes have the greatest effects on SSB sales. A 100% excise tax on energy drinks in Saudi Arabia, for example, led to a 58 percent drop in sales of these drinks in the first year (Alsukait 2020). More typically though, SSB taxes around the world have been implemented at effective rates of roughly 10%, leading to more modest reductions in sales after one year ranging from around 4% in Barbados (Alvarado et al. 2019) to 39% in Philadelphia (Roberto et al. 2019).

In addition to shifting demand for targeted beverages, SSB taxes can influence demand for substitute or complementary products, such as bottled water and low/zero-calorie sweetened beverages. For this reason, SSB taxes need to be designed in a way that minimizes scope for substitution of equally (or more) unhealthy untaxed products, and consumers need to be able to access acceptable, healthier substitutes. Most implemented SSB taxes currently exclude low/zero-calorie sweetened beverages from the tax base, to encourage switching toward these beverages, although there is some

emerging evidence of potential adverse health effects from these drinks too (World Bank 2020).

EFFECTS ON CONSUMPTION

A relatively small number of SSB taxes have been evaluated for their effects on self-reported consumption. Most of these evaluations have been for city-level taxes in the US and have typically involved small-scale telephone, web-based, or street intercept surveys. Ideally, national taxes will be evaluated with large national studies with consistent measurement of dietary intake trends over time.

EFFECTS ON HEALTH OUTCOMES

Given that most health-related SSB taxes have been in effect for a few years or less, it will be some time before evidence of their long-term impacts on health and health-care costs is available. However, modelling studies predict that SSB taxes can lead to significant reductions in disability-adjusted life years, prevalence and incident rates of obesity and type 2 diabetes, and dental caries, as well as health care expenditures, provided a sufficiently large tax rate is applied (Bourke and Veerman 2018, Saxena et al. 2019)

Arguments against SSB taxes

Opponents of SSB taxes often argue that these taxes are not effective, are regressive, negatively affect employment and economic growth, and/or violate international, regional, or national law. However, these arguments are not supported by independent evidence, as summarized in two accompanying Knowledge Briefs (Hattersley et al 2020a,b).

Conclusion

Like tobacco and alcohol taxes, SSB taxes are a 'triple win' measure - they improve health outcomes and reduce healthcare costs, are a new source to mobilize revenue, and increase productivity.

Obesity and diet-related NCDs are complex, multifaceted issues that will not be solved by a single policy measure. SSB taxes need to be implemented as part of a wider government approach to incentivizing and supporting healthy diets and promoting population health and wellbeing more broadly, based on global best practice recommendations (WHO 2017).

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The Health, Nutrition and Population Knowledge Briefs of the World Bank are a quick reference on the essentials of specific HNP-related topics summarizing new findings and information. These may highlight an issue and key interventions proven to be effective in improving health, or disseminate new findings and lessons learned from the regions. For more information on this topic, go to: www.worldbank.org/health.