



Sugar-sweetened beverage taxes in Brazil: past, present, and future

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Abstract

Increasing rates of non-communicable diseases (NCDs) (obesity, type 2 diabetes, and dental caries) are positively associated with the consumption of added sugars, particularly in sugar-sweetened beverages (SSB). Governments worldwide have implemented SSB taxes to reduce the consumption of sugars added to beverages to reduce the prevalence of NCDs. There is a tax on manufactured products, including SSBs in Brazil. However, in 2016 and 2018, the Brazilian federal government decreased the tax rate, bucking global trends. The SSB industry has criticised such policies, and current tax levels are too low to reduce consumption sufficiently to prevent harm. Research supports positive public health impact potential for a higher SSB tax in Brazil. Sharing experience among countries and complementary policies (nutrition education and front of pack labelling) could increase the positive impacts of an SSB tax. We describe the history of SSB taxes in Brazil and the rationale it provides for specific SSB taxes across the country.

Keywords SSB tax · Brazil · Non-communicable disease · Oral health

Key messages

- Increasing rates of non-communicable disease (NCD) are positively associated with the consumption of added sugars, particularly in sugar-sweetened beverages (SSB).

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- Governments worldwide have implemented policies such as SSB taxes to reduce the consumption of sugar.
- There is a tax on manufactured products, including SSBs in Brazil. However, in 2016 and 2018, the Brazilian federal government decreased the tax rate, bucking global trends.
- A higher SSB tax in Brazil is supported by evidence for the potential positive public health impact of such a policy.

Introduction

Non-communicable diseases

Non-communicable diseases (NCDs), also known as chronic diseases, result from a combination of genetic, physiological, environmental, and behavioural risk factors [1]. NCDs are responsible for 71% of all deaths globally, disproportionately occurring in low- and middle-income countries (LMICs). Obesity is one of the most prevalent NCDs. Estimates from 2016 indicate that approximately 13% of the world's adult population (11% of men and 15% of women) met the definition of obese (body mass index ≥ 30 kg/m²), near trebling numbers from 1975 (an increase from 100 million in 1975–1969 million women, 31 million men—to 671 million in 2016—390 million women, 281 million men) [2, 3]. Recent estimates from the World Health Organization (WHO) indicate that in 2016, 38.2 million children under the age of 5 years and over 340 million children and adolescents aged 5–19 were overweight or obese, defined as having abnormal or excessive fat accumulation that may impair health [3]. Obesity occurs globally, but the incidence has increased most rapidly in LMICs. In Africa, the number of children under 5 living with overweight has increased by nearly 24% since 2000 [3–5]; in Latin America (LA) the rate of obesity is growing faster than anywhere else in the world [6].

People living with obesity are also at risk of developing several other medical conditions, such as type 2 diabetes mellitus (hereinafter type 2 diabetes), a condition where the amount of glucose in the blood is too high due to an insufficient production of insulin, or due to an insufficient response to insulin secretion [7]. Data from 2019 indicate that the global prevalence of type 2 diabetes reached 9.3% (463 million people) [8].

Untreated dental caries in permanent teeth is the most common oral disease worldwide [9]. Dental caries is the destruction (demineralisation and dissolution) of the hard calcified tissue (enamel and dentine) [10] caused by deposition of acidic by-products from the bacterial fermentation of free sugars [11] on the surface of the tooth. Data from 2015 indicate that untreated dental caries affected 34.1% of the global population, with peak prevalence in those aged 15–19 years [9]. These data indicate that untreated caries in deciduous teeth affected 7.8% of the global child population [9].



Sugar consumption and NCDs

High consumption of free sugars—monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook, or consumer, and sugars naturally present in honey, syrups, fruit juices, and fruit juice concentrates [12]—has been associated with increased risk of developing NCDs, including obesity and dental caries [9, 13, 14]. Much of the research exploring how consumption of SSBs increases the risk of NCDs focuses on more economically developed countries (MECDs) [15, 16], but some research suggests that similar associations occur in LMICs, where obesity rates are also high and rising, particularly in urban settings [4].

SSB taxes

Due to evidence associating SSB consumption with NCDs, governments across the globe have begun to implement policies to reduce SSB consumption [17]. As of 2020, 50 countries or jurisdictions had implemented taxes on SSBs to discourage consumption [18, 19]. The WHO encouraged this approach [20]. The United Kingdom (UK) implemented a policy to reduce SSB consumption, the UK Soft Drinks Industry Levy (SDIL), on 6 April 2018; it is one of the countries to have done so most recently [21, 22]. A description of the policy objectives for the SDIL can be found elsewhere [23]. Extensive literature addresses the rationale for taxation and public control of SSBs [24]. Research shows that such policies serve as economic disincentives by increasing prices and decreasing purchases, thus reducing the consumption of SSBs [25].

Several factors affect the effectiveness of a policy (such as pass-through rate, price elasticity of demand, and the substitutability of one for other goods), and, in turn, limit the effectiveness of such taxes to reduce consumption of SSBs and sugar [26]. A growing body of research identifies factors that impact the transfer of taxes to prices. Pereda and Garcia highlighted that firm size and the type of product taxed impacted the tax transfer. This suggests it will be important for decision makers to consider such factors in developing policies. A growing body of literature indicates that SSB taxes can reduce SSB consumption [25]. Scarborough et al. (2020) found that the UK SDIL incentivised many manufacturers to reduce sugar in soft drinks; this could reduce population exposure to liquid sugars and associated health risks [27]. SSB taxes also raise funds to pay for health promotion and health care, which can improve their impact [24]. To support the potential for such taxes to improve health, the literature also provides recommendations for increasing acceptability and enhancing the adoption and implementation of these policies (for example, trade policy related to obesity [28]).

Although most SSB taxes apply to MEDCs, there are some examples in LMICs. Several governments in the Pacific region have introduced SSB taxes [29]; Tokelau also banned the import of sugar-sweetened carbonated soft drinks [30]. As of 2018, at least 17 countries in LA had adopted 39 SSB regulatory initiatives [6]. Of these



many initiatives, only Chile, México, and Ecuador approved comprehensive efforts to reduce SSB consumption, in the form of fiscal regulations [6, 31].

NCDs and SSB consumption in Brazil

Brazil is the largest country in LA, with a population of over 212 million [32]. Alterations in socioeconomic and cultural patterns in Brazil, including rapid urbanisation, have resulted in widespread unhealthy dietary patterns and reduced physical activity [33]. As a result, the prevalence of NCDs has increased. The prevalence of adult obesity in Brazil increased from 11.8% in 2006 to 19.8% 2018 [34]. The prevalence of dental caries exceeds 92.3% in some parts of Brazil, with rates particularly high in children living in conditions of social vulnerability [13]. The prevalence of type 2 diabetes in Brazil ranges from 6.3 to 13.5%; 2015 data indicate that nearly 12 million individuals live with diabetes there [35]. NCDs are highest in Brazil's most disadvantaged communities, such as Pardo, and in ethnic groups whose members' skin is very dark [36]. The COVID-19 pandemic has affected such groups disproportionately, and with greater risk of death [37].

As in other LA countries, consumption of SSBs is high in Brazil, with data from the most recent (2008–2009) Family Budget Survey indicating that soft and sweetened drinks account for 43% of sugar consumption (see Fig. 1) [38]. As noted by Epfianio et al. (2020), consumption is particularly high in certain demographic groups including males, those with lower levels of education, and younger people (18–29 age range) [39]. Despite potential biological, social, and economic

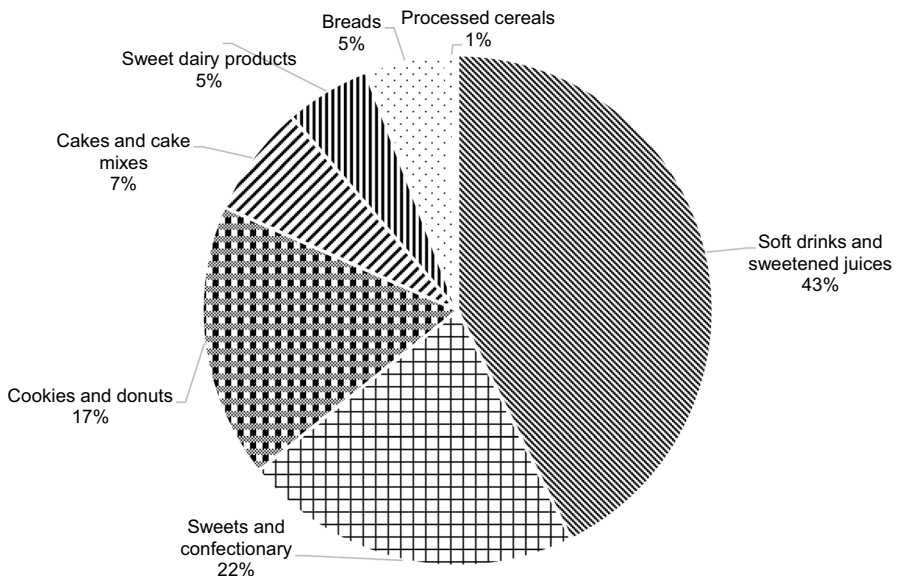


Fig. 1 Food categories that contribute to sugar consumption in the Brazilian population according to data from the 2008–2009 Family Budget Survey



consequences of regular consumption of SSBs, unlike other countries and contrary to the WHO's recommendation, the Brazilian government decreased taxes on many beverages, including on some sugary drinks in 2017 and 2018 [25, 40]. Brazil has not implemented any tax specific to SSBs.

Below, we describe the history of SSB taxes in Brazil as it provides a rationale for the implementation of a specific SSB tax across the country to improve the health of the population.

History of SSB taxes in Brazil

As described by Pereda and Garcia, the Brazilian tax system is highly complex, with federal taxes on income, goods, and services, and state and municipal-level taxes on property, vehicles, and some goods and services [25]. Manufactured products such as SSBs are subject to the Tax on Manufactured Products (IPI in the Portuguese acronym). The IPI rate varies from 0 to 30% based on the degree of essentiality of the item [25], and whether production took place domestically or in another country. The IPI rate can also be subsidised through a credit system, which adds to the complexity of the tax system, and offers possibilities for companies to create distortions [25].

The federal government in Brazil set the IPI tax rate on soft drinks in 2013, with a rate of 27% for juice drinks, nectars, and other SSBs (Decrees 7,212/2010, 7,660/2011, 7,879/2012, 8,017/2013, 8,950/2016, and 9,394/2018 for IPI rates). After 2016, however, Brazil decreased the IPI rate on many SSBs, going against the global trend for increases in SSB taxes at the time. For example, the IPI tax rate for carbonated and non-carbonated sodas was set at 4% (See Pereda and Garcia, 2020 for more detail.). Brazil then implemented another decrease in IPI rates in 2018. The soft drink industry complained heavily because this additional decrease meant an end to a tax subsidy they had valued. Following industry opposition, Brazil repealed the decree and in 2019 increased the IPI rate on many SSBs to 12% [25]. Observers have reported industry opposition to SSB regulations in several other LA countries [41], and other food and beverage policies resulting in changes to government implemented regulations. When the Brazilian national government mandated food or drink advertisements to include messages warning about potential health effects of high sugar products, an industry suit challenged the rules and a court decision resulted in suspension of the messaging regulation [42]. Brazilian authorities have proposed other alterations to taxes affecting SSBs in Brazil. In 2017, for example, Deputy Paulo Teixeira (PT-SP) presented Bill n. 8541/2017 proposing to change the tax on manufactured products. He sought to increase the levy on the import or export of non-alcoholic beverages sweetened with sugar. As of December 2021, this proposal is still undergoing consultation and review, and the outcome remains undecided [43].

Brazil has successfully implemented some non-fiscal regulations on SSBs, including restrictions on advertising and prohibition of sales of SSBs in schools [6]. Evidence indicates an association of such regulations with lower exposure to SSBs, but that there are differences in compliance with these rules across Brazil [44]. Other



efforts to reduce sugar consumption from SSBs in Brazil include self-regulatory approaches by beverage companies. Some of the largest beverage companies there, including Coca-Cola, pledged to sell only water, fruit juice, coconut water, and dairy products in schools for children under 12 years [45]. In 2018, the Brazilian Ministry of Health and the food industry signed an agreement to reduce the amount of sugar in products to diminish population-wide sugar consumption by 144,000 tonnes by 2025 [46]. Such pledges sound promising, but self-regulation offers no legal means of enforcement [47]. Industry often develops its own resolutions without involving civil society, and limits the products included, as noted with the 2018 sugar reduction agreement [46].

Research supports implementation of SSB taxes in Brazil. When assessing the influence of SSB prices on SSB consumption in households in Brazil, Clara et al. (2012) found that a tax on SSBs would lead to reductions in SSB consumption [40]. Fontes et al. (2019) found an association between higher SSB consumption and a less healthy diet, as assessed using the Brazilian Healthy Eating Index—Revised [48, 49]. And a growing body of evidence highlights the potential impact of SSB taxes in LMICs more widely [25, 50]. Recent modelling studies indicate that for people in lower-income countries and young adults globally, SSB taxes would be particularly effective because food expenditures account for a greater share of income for these groups, making them more sensitive to price increases [51].

An SSB tax, alongside complementary interventions to reduce sugar intake, would also support the country in continuing to achieve the health gains it has seen over recent years. Further gains are in jeopardy due to economic and political crises and austerity policies [52]. Support from government agencies for such taxes is growing. At the end of 2017, the Ministry of Health argued in favour of increasing taxes to mitigate future health problems. The proposed increase in taxes coincided with Constitutional Amendment 95 (EC 95/PEC 55/PEC 241), passed by Congress in December 2016, which limited federal expenditure on health over the following 20 years [52]. This act could have opened the door to implementation of such taxes to raise revenues to cover costs of complementary policies. During the World Economic Forum in 2020, the Brazilian Ministry of Economy added its support for inclusion of SSB taxes in a new tax reform proposal to raise revenues [53].

Implementation of new SSB taxes in Brazil

Brazil will need to consider several factors if the country is to implement the most effective SSB policy to curb consumption of harmful commodities and help to reduce NCDs:

- *Definitions of products to be taxed* Research shows benefit to taxing equally all SSBs containing caloric sweeteners [24].
- *Amounts of tax on SSBs* Researchers estimate that a tax resulting in a 30% increase in the average price of SSBs will result in a reduction in consumption of about 25% across consumers in Brazil [40].



- *Type of tax to implement* Research suggests that an excise tax would be an attractive option for Brazil because similar taxes are already in place on other products. Legislators are familiar with this option as are some consumers. Careful design of excise taxes can diminish risk that consumers substitute with less costly brands or other non-taxed sugary products [24].
- *Uses of the tax revenue—decide ahead of implementation* The literature indicates that the general public object less to the implementation of taxes and allocations of revenue they generate if authorities earmark revenues to promote health by covering costs of healthy school meals or subsidising fruit and vegetables compared to directing revenue to non-health or other discretionary purposes [54, 55]. Further research is likely to be needed to explore the most effective and acceptable design of an SSB tax in Brazil. To aid this process, lessons could be shared among countries in LA and others facing similar challenges [56]. For the greatest reduction of NCD prevalence, the Brazilian government should add other measures to fiscal policy tools including consumer education and subsidies for fruit and vegetables [57, 58]. Brazil recently enacted new food labelling legislation (RDC 429 of 10/08/2020) to assist consumers to better understand the nutritional information on food labels, including that about sugars and sweeteners, as a step towards more informed food choices [59]. Such complementary policies could be funded, at least in part, by increased government revenue from SSB taxation.

Conclusion

The history of SSB taxes in Brazil provides a basis and rationale for reimplementation of SSB taxes across the country. The Brazilian tax system is highly complex, with a combination of municipal and federal tax systems and numerous opportunities for industry to avoid taxation. Resistance to SSB regulation in Brazil and in other LA countries has been strong, despite evidence that supports the benefits to population health of such regulations. Opposition to SSB taxation by the beverage industry is unlikely to cease given the decrease in SSB consumption rates in MEDCs, the increased market share devoted to LA, and the ongoing tax benefits provided to them in Brazil. Thus, the Brazilian government, supported by public health advocates, needs to carefully consider the implementation of SSB taxes alongside complementary interventions, such as consumer education, subsidies for fruit and vegetables, and front-of-pack labelling. To support the potential for health improvements from SSB taxes, advocates of SSB taxes and public health should work to build consensus across the public sector, private sector, academia, and civil society in discussing reforms, advocating for policies, and during implementation. Only such collaboration will ensure the greatest chances of SSB tax acceptance in Brazil. Governments in LMICs, such as Brazil, may lack adequate experience and information to develop and implement strong SSB policies, and consequently resist change. Sharing of experience among countries can help to guide government and public health advocates in Brazil who seek effective SSB policies to reduce the prevalence of NCDs, including obesity, type 2 diabetes, and dental caries.



Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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