The Impact and Effectiveness of Sugar-Sweetened Beverage (SSB) Taxation in Malaysia

Technical Report

Kementerian Kesihatan Malaysia

UPM UNIVERSITI PUTRA MALAYSIA BERILMU BERBAKTI

unicef for every child

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List of Acronyms

ANS	Adolescent Nutrition Survey
BMI	Body Mass Index
EQ	Key Evaluation Questions
HCL	Healthier Choice Logo
HFCS	High-Fructose Corn Syrup
MANS	Malaysian Adult Nutrition Survey
MOE	Ministry of Education
MOF	Ministry of Finance
MOH	Ministry of Health
MITI	Ministry of International Trade and Industry
NHMS	National Health and Morbidity Survey
NGOs	Non-Governmental Organizations
NCDs	Non-Communicable Diseases
NCD-RisC	NCD Risk Factor Collaboration
SSBs	Sugar-Sweetened Beverages
ToC	Theory of Change
ToR	Terms of Reference
UNEG	United Nations Evaluation Group
UNICEF	United Nations Children's Fund
UPM	Universiti Putra Malaysia
WHO	World Health Organization

Executive Summary

High sugar intake is a major contributor to the prevalence of overweight, obesity and non-communicable diseases (NCDs). Experts recommend limiting daily intake of free sugars to less than 10.0% of total energy, yet many people exceed this, with sugar-sweetened beverages (SSBs) serving as a major source. Reducing the consumption of these drinks remains a key public health priority.

SSB taxation is a policy measure aimed at decreasing consumption and mitigating obesity and NCD risk. Several countries have implemented SSB taxes, demonstrating reductions in consumption, particularly among children and low-income populations, while generating revenue that can fund public health initiatives. The tax policies also incentivize product reformulation, contributing to healthier dietary options.

Malaysia implemented the SSB tax on 1 July 2019 at a rate of MYR 0.40 per litre for non-alcoholic drinks with added sugars, including carbonated drinks, juices, and flavoured milk. The policy aims to reduce consumption, improve public health, and generate revenue for health programmes. While SSB taxes have proven effective in other countries, their impact in Malaysia has not yet been assessed.

Two and a half years after implementing the SSB tax in Malaysia, an evaluation was conducted to examine its relevance, effectiveness, and impact. The study was led by the Ministry of Health (MOH), with technical and financial support from United Nations Children's Fund (UNICEF), and coordinated by Universiti Putra Malaysia (UPM) in collaboration with researchers from the Department of Nutrition and the School of Business and Economics. It aimed to provide evidence-based insights for policy decisions. The evaluation used a mixed-methods approach, combining qualitative interviews with government officials and beverage producers, with quantitative analysis of retail prices, the number of products carrying the Healthier Choice Logo (HCL) 2.0, and a nationwide survey of 5,211 children, adolescents, and their parents to assess SSB consumption.

Findings indicate that the SSB tax resulted in only a modest retail price increase of 2.2%, well below the expected 8.3%. This outcome was influenced by producers absorbing the tax, reformulating products to qualify for exemptions, and employing avoidance strategies. Awareness of the tax remained low, with only 26.0% of adolescents and 35.3% of parents aware of the policy. Consumption of carbonated drinks in the preceding month was lower than previous national survey levels (16.4% versus 36.9%). However, these findings should be interpreted cautiously, as data were collected during the Recovery Movement Control Order, which may have temporarily altered consumption patterns. The survey also shows that a considerable proportion of adolescents (45.0%) and parents (54.0%) reduced their SSB consumption due to health awareness. This evaluation does not report any public health risks, as it is still too early to determine whether the tax policy has positively impacted outcomes such as obesity.

The tax had a limited impact on the employment and investment of beverage producers, with most maintaining sales and competitiveness. Large producers successfully introduced reformulated products without affecting market share, while small and medium enterprises faced challenges sourcing sugar substitutes, consumer acceptance, and some opted not to pay the tax. Despite this, the tax incentivized the production of healthier options, and the introduction of the HCL 2.0 further facilitated this.

Initially, the SSB tax revenue was intended to fund a universal free breakfast programme for primary school-children. However, the programme was discontinued following government reassessment in 2020. Currently, the revenue is pooled into a consolidated account without a specific allocation for public health, raising potential concerns about accountability and transparency.

Overall, the evaluation shows that the SSB tax was relevant, effective, and had short-term impacts on producers, children, and adolescents. To enhance its effectiveness, the tax design and rate should be refined, enforcement and monitoring strengthened, and SMEs supported in developing healthier beverages. Public health impact can be further improved by reinforcing health promotion, limiting marketing of unhealthy foods, implementing targeted interventions for rural and low-income groups, and ensuring proper allocation and use of funds for health programmes.

Evaluation Objectives and Intended Audience

The purpose of the evaluation was to assess whether implementation of the SSB tax achieved the following six key policy goals in Malaysia:

Reducing the public consumption of SSBs as recommended by the WHO

Reducing sales of SSBs, and increasing the demand for healthier beverage options, and encouraging the industry to indirectly produce healthier products

Utilizing the revenue generated from the tax for the implementation of obesity prevention programmes such as nutrition promotion activities in schools and the community as well as building recreational facilities such as playgrounds

Delivering a message to the public that the government is concerned about their health, especially in reducing the prevalence of obesity and NCDs related to nutrition-related NCDs in the community

Increasing awareness among Malaysians to reduce the consumption of sugar and sweet drinks

Aiming for future policy expansion towards food with high sugar content and other subgroups of drinks such as premix drinks

Recommendations

The following are key recommendations to reduce the consumption of Sugar-Sweetened Beverages (SSBs) in Malaysia and to strengthen public health outcome:

1. **Increase the SSB tax rate and strengthen enforcement of SSB tax implementation**
2. **Provide incentives and support for beverage producers (especially SMEs) to produce healthier beverages**
3. **Earmark higher proportion of the SSB tax revenue to increase dedicated funding for public health programmes and interventions**
4. **Strengthen communication, health programmes, and interventions targeted for all, while also implementing tailored initiatives for rural populations and the B40 (low-income) group**
5. **Strengthen existing healthy eating programmes and restrict marketing and promotion of unhealthy food**

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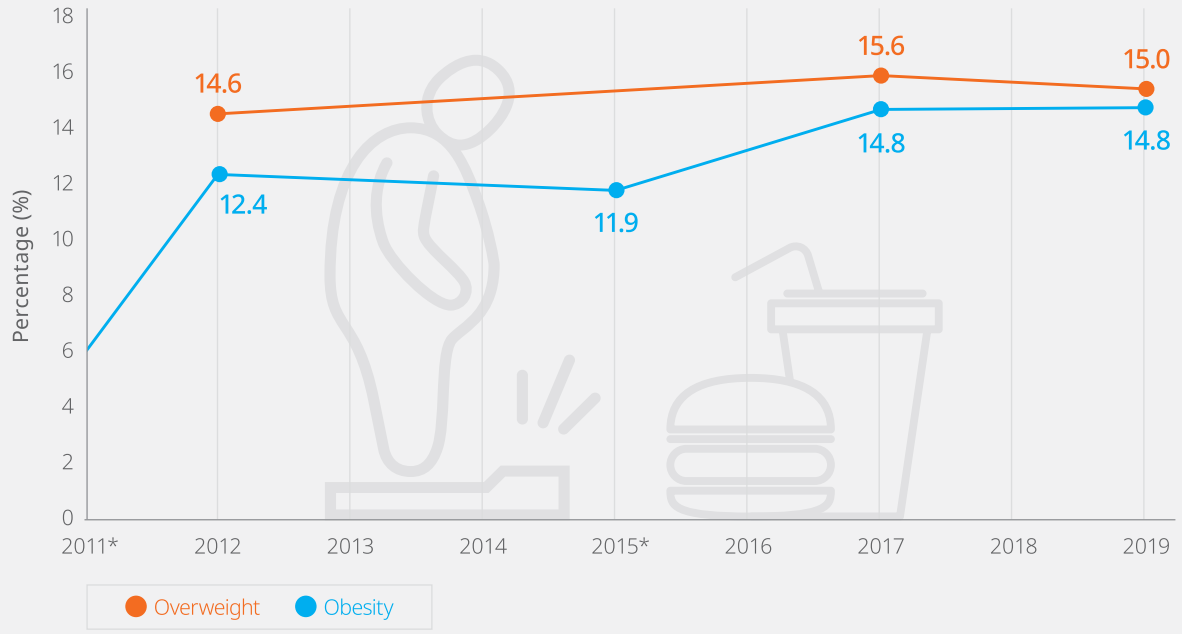
1 | Introduction

According to collaborative studies conducted by the United Nations Children's Fund (UNICEF), World Health Organization (WHO), World Bank, and NCD Risk Factor Collaboration (NCD-RisC), approximately 18.0% of children aged 5 to 19 were overweight, affecting approximately 380 million children worldwide[1]. Malaysia also faces a high prevalence of overweight and obesity among its children and adolescents. The recent National Health and Morbidity Survey (NHMS) reported that 15.0% of Malaysian children and adolescents aged between 5 to 17 years were overweight, while another 14.8% were obese[2]. **Figure 1** illustrates trends in overweight and obesity prevalence among children and adolescents in Malaysia, based on the national data.

Figure 1

Prevalence of overweight and obesity among children and adolescents aged 5 to 17 years in Malaysia (*no data available on overweight for 2011 and 2015)



Being overweight or obese can negatively impact the mental health of children and adolescents. They may face social and psychological challenges such as discrimination, bullying, and stigmatisation, which significantly affect their quality of life and overall well-being. Moreover, childhood obesity greatly increases the likelihood of becoming an overweight or obese adult and developing various health issues, including type 2 diabetes, high blood pressure, heart disease, sleep apnoea, joint problems, asthma, depression, anxiety and low self-esteem.

Overweight and obesity impose a substantial economic burden in Malaysia, with direct costs in 2017 amounting to 13.3% of total healthcare expenditures, equivalent to 0.5% of GDP or US$1.7 billion, making it the highest in Southeast Asia. This estimate excluded indirect costs of productivity loss due to absenteeism or medical leave[3]. The burden of overweight and obesity on the healthcare system and society underscores the urgent need for effective prevention and intervention strategies.

One major contributing factor to these public health concerns is unhealthy diets[4-6], particularly the overconsumption of sugar[7,8]. High sugar content in diets increases overall energy density and threatens the nutrient quality of diets by providing significant energy without specific nutrients, leading to unhealthy weight gain and increased risk of NCDs[9]. The WHO recommends that adults and children limit free sugar intake to less than 10.0% of total daily energy (around 12 teaspoons for adults), with further reduction below 5.0% (about 6 teaspoons or 25 g for adults) for additional health benefits[10]. However, a single serving of sugar-sweetened beverages (SSBs), such as a can of carbonated drink that typically contains 35 g of sugar, may exceed these recommended daily limits[11-12]. Therefore, it is important to reduce the consumption of sugar and SSBs in children and adolescents to maintain good health and prevent NCDs.

1.1 SSB Consumption among Children and Adolescents

The WHO defines sugar-sweetened beverages (SSBs) as *"all types of beverages containing free sugars and these include carbonated or non-carbonated soft drinks, fruit/vegetable juices and drinks, liquid and powder concentrates, flavoured water, energy and sports drinks, ready-to-drink tea, ready- to-drink coffee and flavoured milk drinks"*[13]. *Examples of* SSBs are calorie-containing carbonated drinks, sweetened milk, sweetened teas and coffees, sports drinks, energy drinks (including energy juices and energy sodas), fruit-flavoured drinks (i.e. fruit-flavoured, non-carbonated drinks, and non-alcoholic fruit drinks), sweetened fruit juices (i.e. nectars and mixed juices, juices with added caloric sweeteners, and non-dairy-based fruit smoothies); vitamin water drinks, soda, and beverages with added sugar[14-18].

SSBs are the major source of sugar in the diet, and their consumption is rising among children and adolescents[13]. A 2021 systematic review found that the global daily consumption of SSBs among children and adolescents aged 2 to 18 years remains high at 326.0 mL/day. The review also reported that Malaysian adolescents consumed a lower average intake of carbonated drinks at 196.6 mL/day, although these figures are based on older data[19]. Despite limited data on the overall consumption of SSBs among children and adolescents in Malaysia, the NHMS provides valuable data on carbonated drink consumption among adolescents, serving as a useful proxy.

According to the 2017 NHMS, 36.9% of Malaysian adolescents aged 13 to 17 consumed carbonated drinks at least once daily in the past 30 days[20]. The survey also showed that carbonated drink consumption varied by gender, urban/rural status and ethnicity. Consumption was higher in males (41.4%) than females (32.4%) and in rural areas (41.0%) than urban areas (34.0%)[21]. The highest consumption was reported among Sarawak Bumiputera adolescents (63.6%), followed by other ethnicities (48.2%), Sabah Bumiputera (47.4%), and Indian (43.6%)[21]. Besides carbonated drinks, other SSBs commonly consumed by adolescents included malted drinks, ready-to-drink tea and cordial drinks in various flavours[21]. High SSB consumption among adolescents could contribute to their overall sugar intake. To the best of our knowledge, there is no data on SSB consumption among Malaysian children aged 7 to 9 years.

Multiple factors contribute to the adolescents' SSB consumption, including individual, interpersonal, and environmental factors[22-23]. Individual factors, such as SSBs preferences, knowledge, attitudes, and sedentary behaviours[23-25], play a significant role. Interpersonal factors, such as peer influence and home and family environment, are also linked to SSB consumption, with parenting styles and practices influencing adolescents' intake[26–29]. Environmental factors, such as the neighbourhood and school environment, can also affect adolescents' food choices and diet quality[30,31]. Studies show that school policies that limit the availability of SSBs are associated with lower SSB consumption[30].

Although taxes have been shown to reduce overall SSB consumption[32-34], further study is needed to explore the impact on consumption among children and adolescents. Moreover, a more extensive range of beverage types needs to be evaluated to assess SSBs intake data.

1.2 Taxation on SSBs

The World Bank suggests that a tax increasing SSBs prices by 20.0% or more may reduce SSB consumption and caloric intake, thereby promoting healthy diets and preventing NCDs[35]. Powell et al. also showed that the implementation of a 20.0% tax on SSBs, with a 100.0% pass-through tax rate to consumers, could result in an approximately 20.0% reduction in consumption[36]. However, not all of the tax will be passed on to consumers. Producers may choose to absorb some or all of the tax, rather than increasing prices to consumers, as they find it to be profit-maximising to do so[37]. Even so, a modest tax could still reduce consumer demand if the tax is accompanied by a clear and salient message that the taxed products are less healthy and should be avoided. In contrast, taxes that are not easily noticeable or identifiable to consumers at the time of purchase may be less effective in reducing consumption[38].

To date, at least 54 countries have introduced SSB taxes, including Belgium, Brunei, Finland, India, Ireland, Malaysia, Mexico, Norway, Philippines, South Africa, Sri Lanka, Thailand, United Arab Emirates and the United Kingdom[39,40]. Taxing SSBs is an effective fiscal measure to reduce consumption[41]. SSB taxes in Barbados, Chile, Mexico, and multiple cities in the United States have increased prices and reduced sales and purchases of taxed beverages[42-45]. Even though evidence shows SSB taxes are effective at reducing consumption, the magnitude of impacts varies according to the tax size and other factors. For example, in Mexico, a 10.0% tax on SSBs led to a 6.0% decrease in purchases after one year, affecting all socioeconomic groups, with the lower socioeconomic group impacted the most[46]. Similarly, in the Philippines, a tax on sweetened beverages was associated with a decline in sales of 8.7% of these items in convenience stores[47]. Whereas, in Catalonia, Spain, an excise tax linked to a 39.0% decrease in the prevalence of consumption of taxed beverages[48].

Beyond its impacts on consumption and health outcomes, implementing an SSB tax could increase revenue for the government. In 2016, the SSB tax in the United States of America generated approximately US$13 billion in annual revenue[11]. In Mauritius, the tax generated US$9.2 million (MUR330 million)[49]. Meanwhile, the SSB tax in the United Kingdom generated around £300 million in revenue from 2018 to 2019.

Studies also found that SSB taxes encourage beverage manufacturers to reformulate their products with reduced sugar content by providing incentives to qualify for tax exemptions, thereby providing consumers with healthier beverage options. For example, manufacturers in the United Kingdom reformulated their products by lowering the sugar level following the SSB tax[50,51]. Similarly, in Portugal the SSB tax triggered led to reduced SSBs demand and increased product reformulation, which could potentially reduce obesity among frequent consumers of SSBs[52,53]. Several companies in Thailand also announced intentions to gradually reformulate their products following the SSB tax introduction, lowering sugar content to avoid the tax[54].

1.2.1 SSB tax in Malaysia

Soft policy (nutrition education and promotion) alone is insufficient to combat obesity and NCDs. Therefore, the Malaysian Government implemented SSB taxation on 1 July 2019. Under the new policy, all ready-to-drink SSBs with sugar content within predefined limits described in **Table 1** are subjected to a duty of MYR0.40 per litre. The tax aims to reduce SSB consumption among Malaysians, which could gradually lower the prevalence of overweight or obesity in the country.

Table 1
Categories of beverages with dutiable sugar contents

Category	Dutiable sugar content
Carbonated and non-carbonated drinks with sugar	> 5 g/100 mL
Milk-based products	> 7 g/100 mL
Fruit and vegetable juices	> 12 g/100 mL

Based on the price elasticity of demand for SSBs in Malaysia, which is -1.11, a 20.0% increase in the price of SSBs could potentially reduce consumption by 22.0%[55]. However, the MYR0.40 per litre tax imposed by the government was estimated to increase the SSB prices by only 8.3%, and consumption was projected to decrease by only 9.3%[55].

The current tax rate on SSBs is estimated to generate around MYR357.6 million in revenue for the government[55]. However, this amount depends on the responses of SSB producers to the tax. In Malaysia, more than 90.0% of the existing SSBs fall under the taxable threshold[55]. To avoid price increases, some producers absorbed the tax or reformulated their products to lower the sugar content below the taxable limit. Such reformulation could improve public health and well-being. Hence, there is a need to examine the perceived changes in SSB prices, reformulation, sales and their revenue due to the imposition of the SSB tax.

1.3 Key Policy Goals of the SSB Tax in Malaysia

The main objective of the SSB tax is to reduce consumption of SSBs and the burden of obesity-related NCDs among Malaysians. The key policy goals are:

- Reducing the public consumption of SSBs as recommended by the WHO.
- Reducing sales of SSBs, increasing the demand for healthier beverage options and encouraging the industry to indirectly produce healthier products.
- Utilizing the revenue generated from the tax for the implementation of obesity prevention programmes such as nutrition promotion activities in schools and the community as well as building recreational facilities such as playgrounds.
- Delivering a message to the public that the government is concerned about their health, especially in reducing the prevalence of obesity and nutrition-related NCDs in the community.
- Increasing awareness among Malaysians to reduce consumption of sugar and sweet drinks.
- Aiming for future policy expansion towards foods with high sugar content and other subgroups of drinks such as premix drinks.

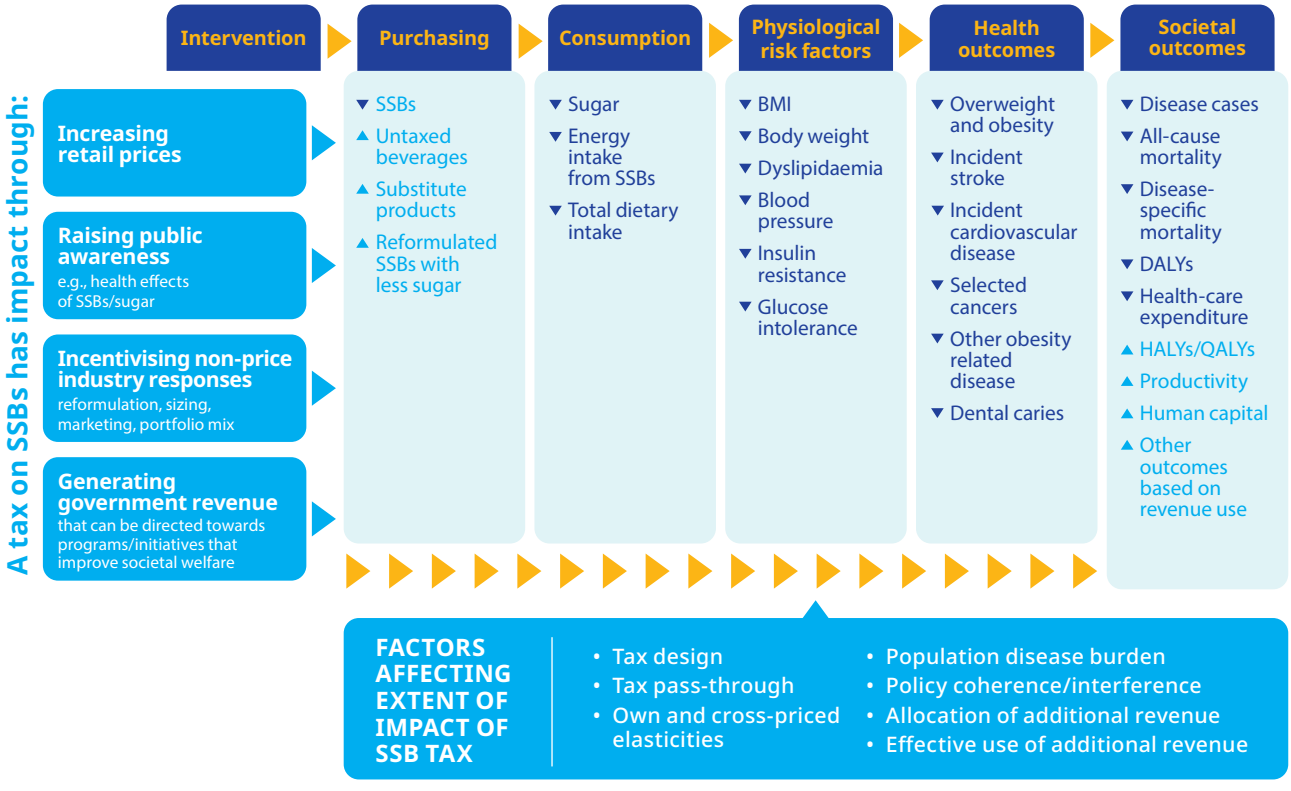
1.4 Theory of Change (ToC)

A World Bank publication on SSB taxes developed a Theory of Change (ToC) **(Figure 2)** that summarises the expected outcomes of an SSB tax and the mechanisms through which it operates[13]. While it has not been adapted to fit the Malaysian context, it provides an in-depth overview of the various mechanisms and pathways of change that occur in parallel and highlights the potential outcomes of effective SSB tax design and implementation. This provides valuable insights to inform the development and implementation of an SSB tax in Malaysia.

The ToC highlights the potential pathways through which an SSB tax could reduce SSBs consumption and, ultimately, improve health outcomes. It begins with the assumption that an SSB tax would increase the price of SSBs, making them less affordable and discouraging consumers from purchasing, thereby decreasing consumption. As consumption decreases, the ToC indicates that individuals who consume SSBs may experience a reduction in total energy intake, which could lower the risk of obesity and other related health issues such as diabetes and heart disease. The ToC also suggests potential indirect effects of the SSB tax on other food and beverage choices. For example, consumers may shift their consumption towards healthier alternatives, such as water or other non-sweetened beverages, contributing to reduced caloric intake and improved health outcomes.

Finally, the ToC acknowledges that the success of an SSB tax is dependent on several contextual factors, such as the level of the tax, the way the tax is implemented, and the specific characteristics of the targeted population. Therefore, careful consideration and planning are required to design an effective SSB tax policy that can lead to desired health outcomes.

Figure 2
ToC and four key mechanisms through which SSB taxes work[56]



Note: DALY = Disability-Adjusted Life Year; HALY = Health-Adjusted Life Year; QALYs = Quality-Adjusted Life Year

1.5 Problem Statement

Excessive consumption of SSBs is a significant public health concern in Malaysia, contributing to the high prevalence of obesity and related chronic diseases. Childhood overweight and obesity rates in Malaysia are increasing and necessitating urgent intervention to prevent negative health and economic consequences[3]. Hard policies, such as sugar taxes, marketing restrictions, improved food labelling, zoning regulations and promoting healthier food environments, can complement soft policies and create a more impactful approach to tackling obesity. The implementation of an SSB tax as a hard policy has been successful in reducing SSB consumption in multiple countries[42,48,54,57,58] and Malaysia is accelerating its sugar reduction efforts.

The Malaysian Government enacted taxes on SSBs on 1 July 2019. However, there is a lack of comprehensive evaluation regarding the effectiveness of the SSB tax policy. The challenge included the absence of a robust evaluation framework to assess the impact of SSB taxes on key outcomes, such as changes in consumption patterns, increased retail prices, raised public awareness and generated government revenue. Without thorough evaluation, policymakers and stakeholders face challenges in determining the true effectiveness, unintended consequences and equity considerations associated with SSB tax implementation. Consequently, there is a critical need for an in-depth evaluation of SSB tax policies to provide evidence-based insights that can guide policymakers in designing and implementing effective strategies to reduce SSB consumption and improve public health outcomes while considering potential socio-economic impacts and equity implications. Therefore, it is crucial to evaluate the SSB tax implementation in terms of its relevance, effectiveness and short-term impacts.

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2 | Evaluation Objectives, Scope, and Questions

2.1 Objectives of the Evaluation

Preliminary analysis by UNICEF and the WHO suggests that the existing MYR0.40 per litre SSB tax in Malaysia should reduce SSB consumption and raise significant revenue that can be reinvested in programmes to improve nutrition and health. Since its implementation in July 2019, an evaluation of the tax's impact on prices, consumption, awareness and perceptions, beverage producers' response to the tax, and tax revenue and expenditure is warranted. Led by the MOH, this evaluation provides lessons learnt and solid recommendations to improve and strengthen the SSB tax in Malaysia. It aims to study the impact of the SSB tax through the approach shown in **Table 2**.

Table 2
The expected impacts of the SSB tax implementation in Malaysia

Expected impact	Details
Changes in retail prices and sales data	• The price of SSB products, which was measured using the price data from the Ministry of Domestic Trade and Consumer Affairs and adjusted by the consumer price index (CPI). • The degree of SSB tax that has been passed on to consumer prices.
Consumption of SSBs, awareness and perception (considering the needs of disabled children)	• Consumption of beverages among boys and girls aged 7 to 17 years, and differences across demographic groups, including income level. • Changes in SSB consumption among adolescents aged 10 to 17 years, compared with the National Health and Morbidity Survey 2017. • Awareness and perceptions of the SSB tax among adolescent boys and girls aged 13 to 17 years; this includes awareness of taxation, perceptions of how the tax has affected SSB consumption, reasons why the tax was or was not perceived to have affected SSB intake (with a focus on contextual factors that interact with the SSB price effect on consumer demand), and preferences for substitution of the taxed SSBs.
Incentivizing non-price industry responses	• Trends in SSB products reformulation. • Potential undesirable effects related to the implementation of the SSB tax, such as the impact on employment, investment, and competitiveness.
Generating government revenue	• Impact of the SSB tax on government revenue. • Government expenditures of SSB tax revenues.

2.2 Scope of the Evaluation

2.2.1 Focus

The evaluation followed the ToC adapted from the World Bank[13] (refer to Section 1.4) to define the mechanisms and outcomes included in the evaluation. The evaluation criteria were focused on the relevance, effectiveness, and impact (refer to Section 2.3). Short-term and intermediate outcomes were explored. Other individual health behaviour theories were considered, as the behaviour outcomes could be achieved via various pathways involving different factors.

The first part of this evaluation focused on economic aspects, including the stakeholders' and SSB producers' perspectives on SSB tax, revenue, and the impact of SSB tax implementation, such as tax pass-through, SSB prices, reformulation of SSB sugar content, sales, revenue and employment. All of these were evaluated among SSB producers and ministries, except for awareness and perception of the SSB tax, which were evaluated among parents and adolescents.

The second part of this evaluation focused on the nutritional aspects, including SSB purchasing and consumption by children and adolescents. Additional information, such as sociodemographic, personal, behavioural and environmental factors, was also included in this evaluation as indirect factors that might contribute to SSB consumption among children and adolescents.

2.2.2 Timeframe

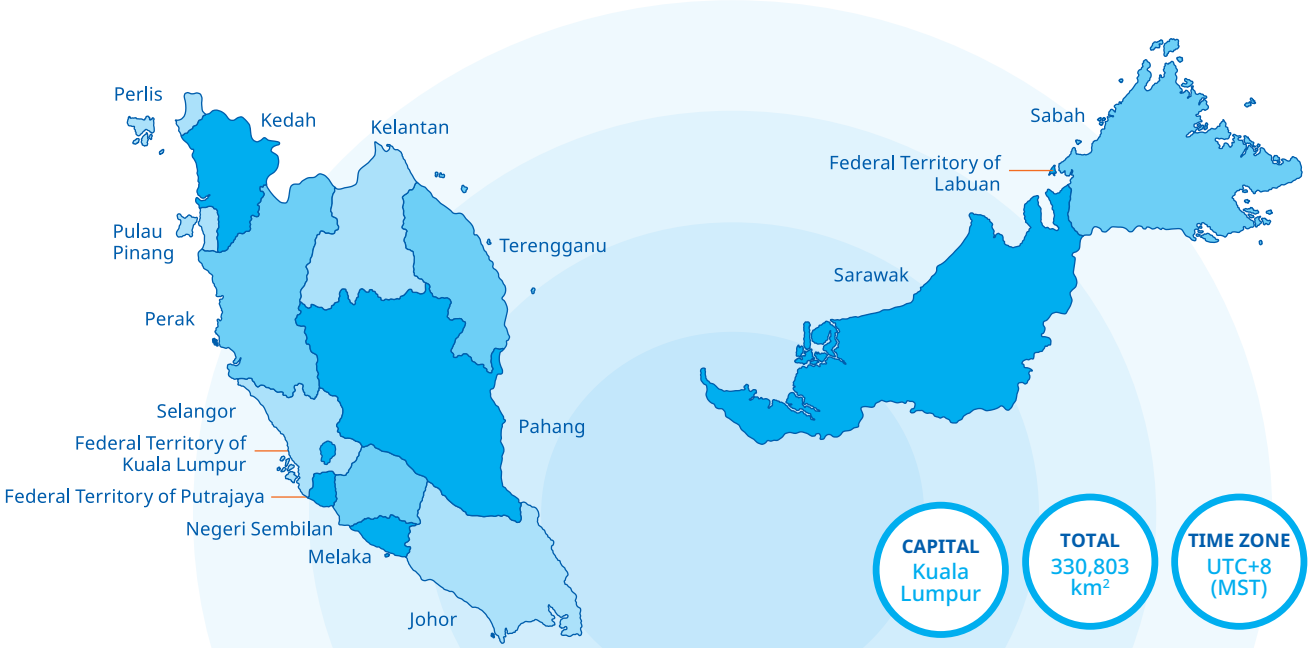
The evaluation assessed developments since the introduction of the tax in July 2019.

2.2.3 Location

The evaluation covered the impacts of the SSB tax on children and adolescents as well as the SSB producers in Malaysia. The nutrition study focused on schools from all 13 states and 3 federal territories in Malaysia **(Figure 3)**. Meanwhile, the economic study focused on relevant stakeholders and SSB producers in the country.

Figure 3

States and federal territories of Malaysia. This evaluation covered all 13 states and 3 federal territories



2.3 Key Evaluation Questions

The evaluation criteria followed the Organisation for Economic Co-operation and Development, Development Assistance Committee (OECD DAC), i.e. relevance, effectiveness and impact **(Table 3)**[59]. The relevance criterion assesses whether the SSB tax design corresponded to the Malaysian context. The effectiveness criterion evaluates whether the implementation of the SSB tax was achieving its objectives. The impact criterion measures only the short-term effects on SSB consumption, as it was too soon to measure the long-term impact in this evaluation. Equity and gender equality considerations were included in the evaluation question, as illustrated in **Table 4**. Children with disabilities, recognized as a vulnerable population, were also included in this evaluation, covering all seven categories defined by the Department of Welfare Malaysia:

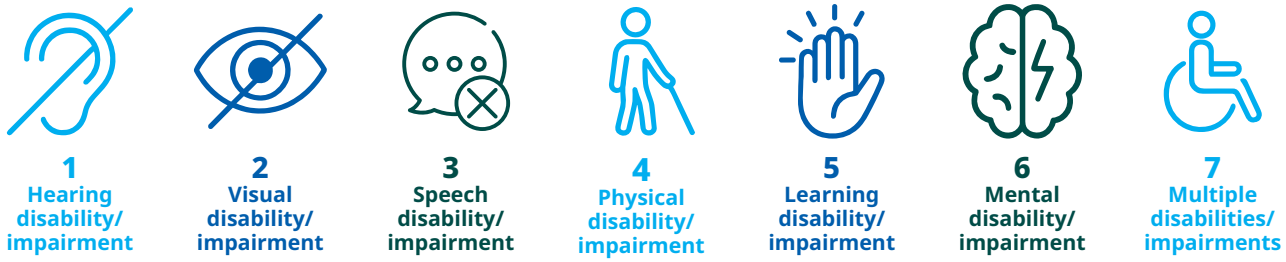


Table 3
Evaluation criteria

Criteria	Evaluation Questions
Relevance (Does the design of the SSB tax correspond to the Malaysian context?)	• To what extent was the SSB tax in Malaysia designed to take into consideration awareness and consumption trends of the Malaysian population? • Is the tax and tax design level relevant enough to lead to changes in consumption by consumers and market responses from the producers? • How is the revenue collected from the SSB tax being used to fund public health and/or social equity programmes?
Effectiveness (Is the SSB tax achieving its objectives?)	• To what extent were the key policy goals of the SSB tax in Malaysia achieved? • What were the major factors influencing the achievement or non-achievement of the objectives?
Impact (What short-term differences does the SSB tax make?)	• To what extent have the SSB taxes reduced consumption among male/female children and adolescents? • What impact has the SSB tax had on employment and investment in beverage industry? • What impact has the SSB tax had on reformulation? What is the trend in the reformulation of sugary drinks in Malaysia? • How can the results inform ways in which the SSB tax can be strengthened? • What are the recommendations for future policy implementation and directions?

Table 4
Questions for assessing equity and gender equality

Criteria	Details
Gender	• Is there evidence of differential impacts of SSB taxes between boys and girls? If so, what explains these differences, and how can these differences be used to enhance the effectiveness of the tax on both genders and promote gender equality within awareness and perceptions of SSB?
Equity	• Is there evidence of differential impacts for different income quintiles? • Have vulnerable households (according to household income) been impacted disproportionately by the tax?

2.4 Key Stakeholders and Intended Users of the Evaluation

The main agency implementing the evaluation is the Nutrition Division of MOH Malaysia. UNICEF Malaysia provided financial and technical support, while UPM served as the lead consultant for conducting the evaluation. The evaluation also collaborated with other ministries for the Reference Committee and periodic review, and the final report.

The target audience of the evaluation includes the Cabinet, members of Parliament, relevant government authorities and line ministries, as well as departments of health. The secondary users consist of academicians, researchers and non-government organizations (NGOs) to inform future policy direction and other advocacy strategies and programmes. The roles and responsibilities of stakeholders are outlined in **Table 5**.

Table 5
Key stakeholders, intended users of the evaluation, and their roles

Stakeholders	Nature and Level of Engagement	Roles
Nutrition Division, Ministry of Health Malaysia	Primary duty bearer (National)	• Chair the Reference Committee • Coordinate with the different agencies • Oversee and drive the evaluation activities to ensure that the goals of the ToR are achieved in an adequate and timely manner • Facilitate the collection of key documentation requested by the evaluation team in a timely manner • Participate in the interview process as key informants on the programme • Facilitate questionnaire design • Consider the discussion and recommendations from the Reference Committee members • Facilitate logistical support to the evaluation team • Provide an initial set of comments to output before they are submitted to other stakeholders for comment • Consider and approve any changes to the evaluation • Principal authorship of the final report

Table 5
Key stakeholders, intended users of the evaluation, and their roles *(continued)*

Stakeholders	Nature and Level of Engagement	Roles
United Nations International Children's Fund (UNICEF)	International/ Supporting partner (Primary)	• Provide overall guidance and support to the evaluation team to ensure that the goals of the ToR are achieved in an adequate and timely manner • Undertake quality assurance to ensure that data collection is carried out in a manner consistent with the UNEG Norms and Standards and with professional evaluation standards • Safeguard the independence of the evaluation • Facilitate questionnaire design • Provide an initial set of comments to output before they are submitted to other stakeholders for comment • Ensure that the evaluation team takes these comments into account and responds to them in a transparent manner • Undertake overall management of the evaluation partnership with UPM
Universiti Putra Malaysia (UPM)	National Implementing partner/Evaluation team (Leader/Primary)	• Develop the evaluation methodology • Participate in field work • Oversee and management of evaluation team members • Orient and train evaluation team members and data collection assistants • Take responsibility for meeting deadlines and ensuring quality of evaluation products • Design and facilitate of final workshop • Ensure systematic data collection, analysis and reporting to inform on future strategic and economic policy
Ministry of Finance (MOF)	National Partner (Secondary)	• Serve as a member of the Reference Committee • Contribute to the quality and utility of the evaluation by commenting and advising at several pre-determined junctures of the evaluation process, such as the inception report and draft report • Provide guidance on strategic direction for policy evaluation to inform decision-making
Ministry of Domestic Trade and Consumer Affairs (KPDNHEP)	National Partner (Secondary)	• Serve as a member of the Reference Committee • Contribute to the quality and utility of the evaluation by commenting and advising at several pre-determined junctures of the evaluation process, such as the inception report and draft report • Provide guidance on strategic direction for policy evaluation to inform decision-making

Table 5
Key stakeholders, intended users of the evaluation, and their roles *(continued)*

Stakeholders	Nature and Level of Engagement	Roles
Ministry of International Trade and Industry (MITI)	National Partner (Secondary)	• Serve as a member of the Reference Committee • Contribute to the quality and utility of the evaluation by commenting and advising at several pre-determined junctures of the evaluation process, such as the inception report and draft report • Provide guidance on strategic direction for policy evaluation to inform decision-making
Ministry of Women, Family and Community Development (KPWKM)	National Partner (Secondary)	• Serve as a member of the Reference Committee • Contribute to the quality and utility of the evaluation by commenting and advising at several pre-determined junctures of the evaluation process, such as the inception report and draft report • Provide guidance on strategic direction for policy evaluation to inform decision-making
Ministry of Education (MOE)	National Partner (Secondary)	• Serve as a member of the Reference Committee • Contribute to the quality and utility of the evaluation by commenting and advising at several pre-determined junctures of the evaluation process, such as the inception report and draft report • Provide guidance on strategic direction for policy evaluation to inform decision-making
Cabinet and Parliament	National Intended users	• Strengthen the SSB tax
Academic institutions, researchers and NGOs	National Intended users	• Continue research and develop effective methods for impact evaluations to support government programmes, developing advocacy strategies, and inform future policy evaluation

3 | Methodology

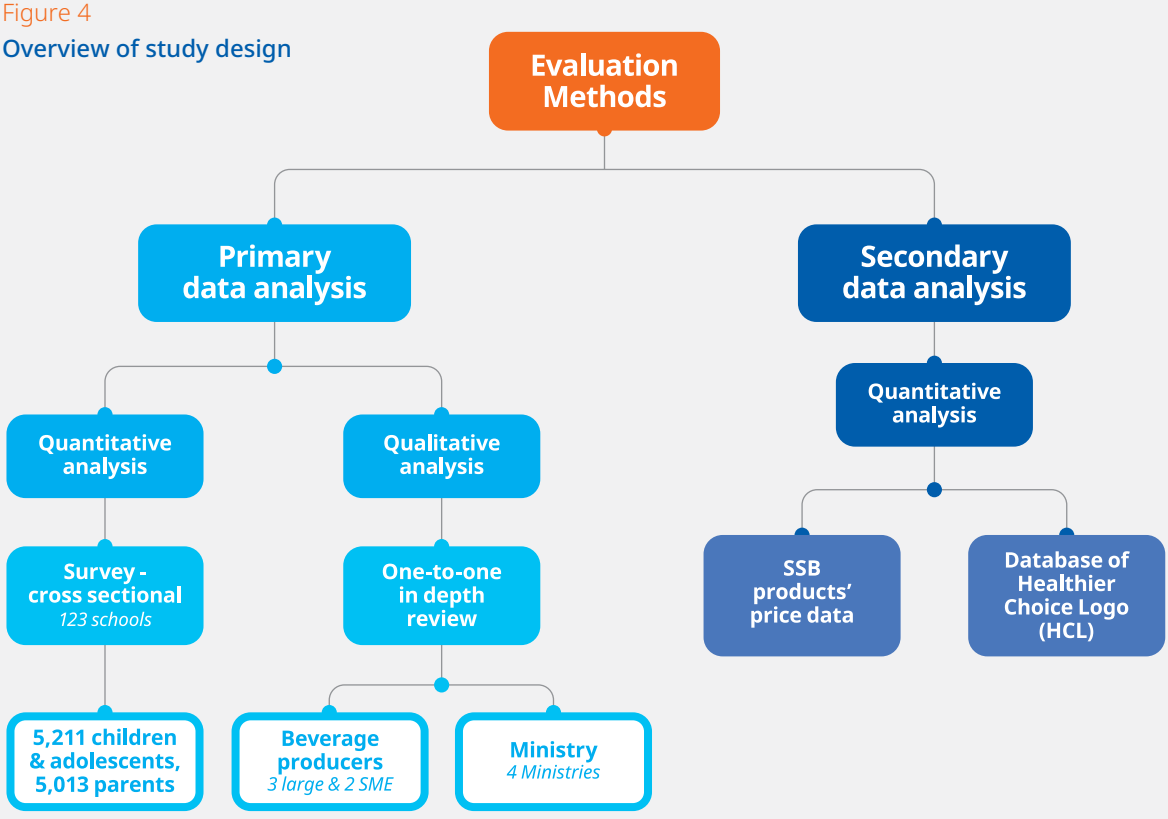
3.1 Study Design

This evaluation consisted of economic and nutritional aspects, based on ToC proposed by the World Bank (refer to Section 1.4). The economic aspect aimed to assess the effects of SSB taxation on SSB producers and the views of related ministries in Malaysia. The nutrition aspect involved a nationwide cross-sectional study aimed at examining the SSBs consumption and its associated factors in children and adolescents in Malaysia.

A mixed-methods study design was used in this evaluation, including both quantitative and qualitative methods **(Figure 4)**. For the quantitative component, one method of examining the impact of the tax on SSB products was the analysis of secondary data. The prices of SSB products were deflated by the consumer price index (CPI) into real terms, and the real price changes before and after the implementation of the tax in 2019 were analysed. The MOH also provided a list of SSB products that were granted the Healthier Choice Logo (HCL) 2.0 certification. Another quantitative method was a nationwide school-based cross-sectional study involving children and adolescents aged 7 to 17 years in Malaysia, as well as their parents.

For the qualitative approach, SSB producers were interviewed, and they were asked about their reformulated products. Economic aspects included the impact of the SSB tax on reformulation, changes in product prices, employment, investment and competitiveness. Another qualitative approach, based on in-depth interviews, was conducted with representatives from selected Malaysian stakeholders from a few ministries. The ministries involved were directly or indirectly related to the SSB taxation, including the Ministry of Finance, the Ministry of Domestic Trade and Consumer Affairs, the Ministry of Education, and the Ministry of Youth and Sports.

Figure 4
Overview of study design



3.2 Quantitative Methods

3.2.1 Cross-sectional study involving children and adolescents

This nationwide study involved 123 public primary and secondary schools in Malaysia. The target population was children and adolescents aged 7 to 17 years. Respondents were selected based on the inclusion and exclusion criteria, as shown in **Table 6**.

Table 6
Inclusion and exclusion criteria for the selection of respondents for the cross-sectional study

Inclusion Criteria	Exclusion Criteria
Malaysian	Self-reported medical conditions (e.g., hypertension, diabetes, cardiovascular disease, thyroid disease, asthma, food allergies, and eczema)
School-aged children and adolescents aged 7 to 17 years	Standard 6 students and students who were taking the Form Three Assessment (PT3) or Malaysian Certificate of Education (SPM) examination
	Children and adolescents from boarding schools, private schools, international schools, and religious schools

3.2.1.1 Sample frame and sample size

The sampling frame used the list of primary and secondary schools provided by the MOE. Student enrolment data from 7,702 primary schools and 1,985 secondary schools in Malaysia in May 2021 were included **(Table 7)**. The minimum number of respondents needed for the survey was calculated at 95.0% confidence with a 5.0% margin of error. Based on previous data (NHMS 2017), the initial sample size was 358 respondents. To ensure reliable results across different groups, the sample size was increased to account for survey design, expected response rates, and comparisons between rural and urban areas, boys and girls, and children aged 7 to 12 versus adolescents aged 13 to 17. After these adjustments, the final required sample size was 7,160 respondents.

Table 7
Distribution of primary schools and students sampled by state

State	PRIMARY						TOTAL Primary Students
	Urban Schools	Rural Schools	Urban		Rural		
			Male	Female	Male	Female	
Johor	550	344	140,474	132,665	28,366	26,840	328,345
Kedah	471	71	86,762	83,361	8,936	8,469	187,528
Kelantan	328	88	74,608	71,234	12,879	12,358	171,079
Melaka	191	39	39,757	37,596	2,510	2,307	82,170
N.Sembilan	202	148	44,153	41,711	11,110	10,450	107,424
Pahang	173	365	40,842	38,941	35,392	33,657	148,832
Pulau Pinang	259	8	65,887	62,992	543	505	129,927
Perak	538	308	83,060	78,499	19,585	18,393	199,537
Perlis	45	24	8,183	7,752	3,384	3,114	22,433
Selangor	584	77	273,646	260,208	5,821	5,508	545,183
Terengganu	210	140	52,246	50,076	15,620	14,796	132,738
Sabah	113	954	44,851	42,649	104,963	97,893	290,356
Sarawak	168	1,083	52,294	48,811	68,654	64,210	233,969
Kuala Lumpur	188	0	67,611	65,538	0	0	133,149
Labuan	17	0	5,099	4,765	0	0	9,864
Putrajaya	16	0	10,984	10,599	0	0	21,583
TOTAL	**4,053**	**3,649**	**109,0457**	**1,037,397**	**317,763**	**298,500**	**2,744,117**

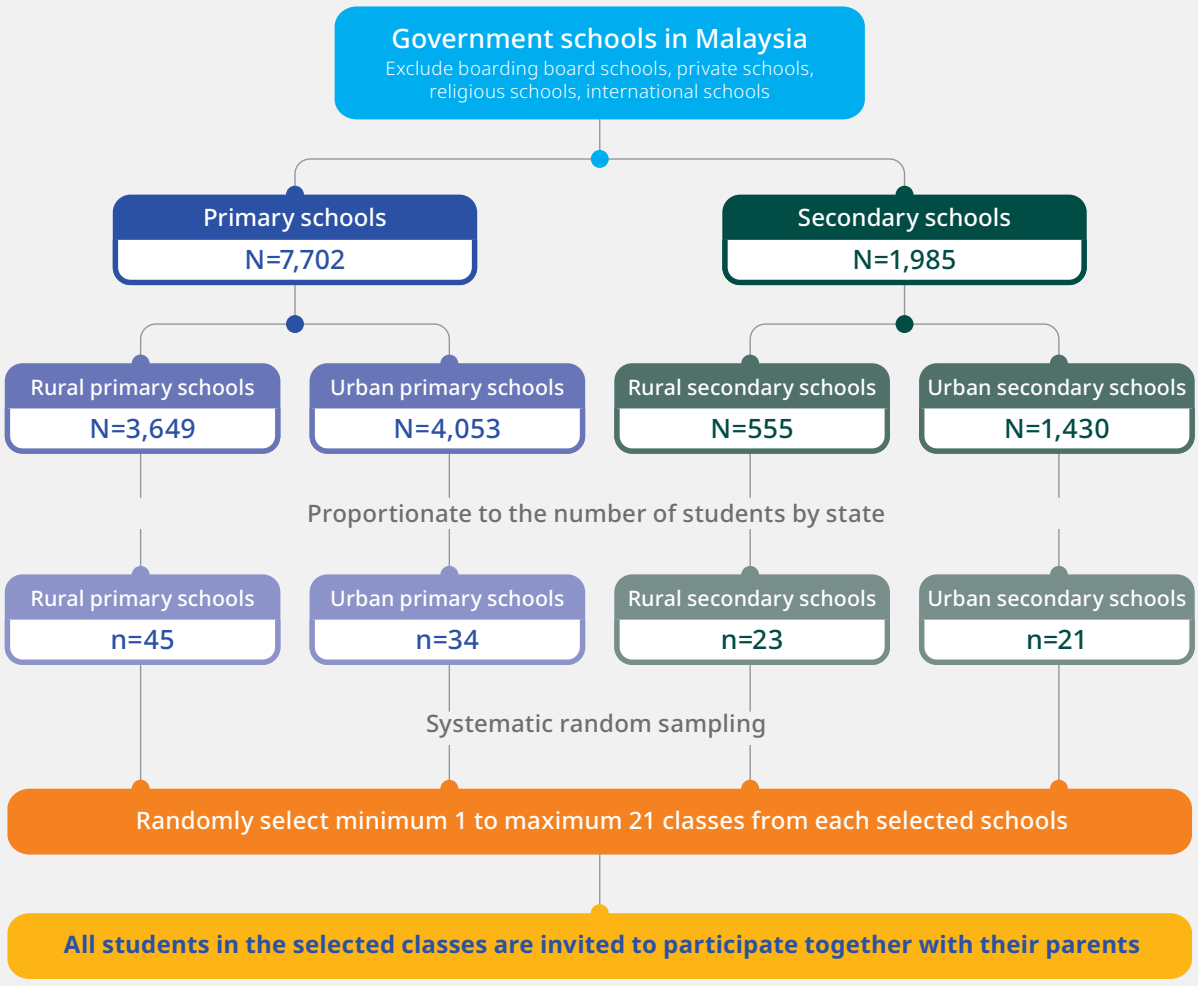
Table 7
Distribution of secondary schools and students sampled by state *(continued)*

State	SECONDARY						TOTAL Secondary Students
	Urban Schools	Rural Schools	Urban		Rural		
			Male	Female	Male	Female	
Johor	172	62	96,771	95,531	16,244	15,809	**224,355**
Kedah	142	12	58,899	60,576	3,138	3,001	**125,614**
Kelantan	124	15	45,143	45,977	4,963	4,932	**101,015**
Melaka	54	6	26,231	26,236	1,889	1,833	**56,189**
N.Sembilan	66	25	29,125	28,952	5,852	5,653	**69,582**
Pahang	77	88	26,802	27,219	17,557	17,305	**88,883**
Pulau Pinang	100	2	45,112	44,299	320	327	**90,058**
Perak	163	38	63,435	63,811	8,062	8,246	**143,554**
Perlis	15	8	5,545	5,380	2,290	2,343	**15,558**
Selangor	220	6	168,235	166,486	1,497	1,319	**337,537**
Terengganu	79	36	30,388	30,201	8,433	8,036	**77,058**
Sabah	54	143	33,739	34,623	64,634	63,841	**196,837**
Sarawak	58	114	37,245	36,831	55,176	54,927	**184,179**
Kuala Lumpur	89	0	40,999	40,356	0	0	**81,355**
Labuan	8	0	2,893	2,943	0	0	**5,836**
Putrajaya	9	0	4,506	4,530	0	0	**9,036**
TOTAL	**1,430**	**555**	**715,068**	**713,951**	**190,055**	**187,572**	**1,806,646**

3.2.1.2 Sampling technique

Multistage stratified cluster sampling was employed in the study **(Figure 5)**. Schools in Malaysia were stratified into primary (N=7,702) and secondary (N=1,985) schools. Then, the schools were further divided into urban and rural schools. The proportion of primary and secondary school-children attending the urban and rural areas of each state was calculated. A standardized ratio of 1:1 for gender was used to determine the number of boys and girls required in the urban and rural areas. Rural and urban schools were randomly selected based on the probability proportional to the number of school-children in each state. All classes in each randomly selected school were included in the sampling frame, and systematic random sampling was used to select a minimum of 1 to a maximum of 21 classes from each selected school. Subsequently, all students in the selected classes were invited to participate in this study. This study included 5,211 respondents. Although the required sample size was not achieved, a post hoc power analysis indicated that the study achieved 100.0%.

Figure 5
Multistage stratified cluster sampling in the cross-sectional study



3.2.1.3 Data collection instruments

Structured questionnaires collected data based on the evaluation scope. Two sets of Malay-language, self-administered questionnaires: one for children (aged 7 to 9 years) and another for adolescents (aged 10 to 17 years), were employed. Both sets were in Malay. The questionnaire for the children was completed by their parent or caregiver responsible for household food and beverage purchasing. The adolescents completed their own questionnaire, as did their parents/caregivers (for their respective parts). Respondents self-reported their weight, height and waist circumference. For adolescents with a disability or impairment (such as visual, physical, learning, or mental disability), or any disability or impairment that affected their reading ability and judgement, the questionnaire was answered by the parent or caregiver.

A pilot test was conducted in four selected schools in Pulau Pangkor, Perak, from 7 to 10 December 2021 to ensure the validity and reliability of the questionnaires used. Respondents (n=70) involved in the pilot test were excluded from the main data collection. Before the actual data collection, enumerator training was conducted on 17 December 2021. Nationwide data collection started on 17 January 2022 to 26 August 2022.

3.2.2 Quantitative analysis of secondary data for the economic aspect

Secondary data was collected from relevant government ministries. The SSB products' price data for 2019 were obtained from the Ministry of Domestic Trade and Consumer Affairs and deflated by the CPI. The evaluation team received monthly prices of 26 SSBs, but some did not have complete monthly price data. The data were transformed into quarterly averages to address missing data, and only 11 SSBs with complete data were used for analysis purposes. Deflating the price data was done to retrieve the real price and to remove the effect of price inflation. This study analysed the changes in SSB prices between the second and third quarters of 2019 to capture the effect of SSB tax implementation which started on 1 of July 2019.

The HCL 2.0 database was obtained from the MOH to analyse the number of SSB products granted HCL 2.0 certification and the number of producers implementing reformulation measures. HCL 2.0 serves as the best proxy for reformulation efforts, as SSB products with sugar content below 5 g per 100 mL qualify for certification and are exempt from the SSB tax, aligning with the taxation standard.

This study examined selected categories of SSB products, including: (i) carbonated and non-carbonated drinks, (ii) milk-based products, and (iii) fruit and vegetable juices. This analysis enabled the evaluation team to study the trend of reformulated SSB products available in the market before and after the implementation of the SSB tax.

3.2.3 Data analysis

The data were analysed using IBM SPSS Statistics 26. Continuous variables were tested for normality based on the skewness of data that fell within ± 2. Descriptive statistics are presented as means and standard deviations for continuous variables, while categorical variables are presented as frequencies and percentages. Simple linear regression was applied to determine the factors associated with the consumption of SSBs. All variables with $p < 0.25$ in the simple linear regression model were included in the multiple linear regression model. The threshold for statistical significance for all tests was set at $p < 0.05$.

3.3 Qualitative Methods

3.3.1 One-on-one in-depth interviews

The qualitative study employed a semi-structured interview guide constructed by the evaluation team. The interviews were conducted online and offline from 29 November 2021 to 14 September 2022. All interviews were recorded and transcribed.

3.3.1.1 Respondents of the in-depth interviews

Purposive sampling techniques were used to select individuals who had relevant current experience or had experience with the phenomenon of interest to provide richly textured information. The number of respondents interviewed is listed in Table 8.

Table 8
Selection of SSB producers and ministries associated with the SSB tax

Role	Organization	Rationale	Number of respondents
Producers	Beverage Industries	Produce SSBs Products	5
Ministries	Departments related to SSB tax in Malaysia	Key Role in the Policy Process	4

Semi-structured interviews were conducted with four different ministries **(Table 9)** and five SSB producers **(Table 10)**. Approximately 135 companies were approached, and six responded to the interview request. The companies consist of three large SSB producers and two small and medium enterprises (SMEs). A total of eight males and one female took part in the interviews, comprising one Chinese and eight Malays. They held various positions, including one director, two assistant directors, and six with upper-management positions, and had work experience ranging from 5 to 23 years.

Respondents were informed of the interview duration (30 to 45 minutes) and assured that the identities of individuals and institutions would remain confidential. They were assigned an identifier, as shown in Tables 9 and 10, to maintain anonymity.

Table 9
Background of ministry representatives interviewed

List of Organization	Current Position	Years of Experience
Ministry of A	Chief Assistant Director	≥15 years
Ministry of B	Chief Assistant Director	≥20 years
Ministry of C	Deputy Secretary	≥20 years
Ministry of D	Head of Branch	≥15 years

Table 10
Background of SSBs producers interviewed

List of Producer	Size of company	Current Position	Years of Experience
Producer A	Large	Senior Manager	≥5 years
Producer B	Large	Senior Manager	≥15 years
Producer C	Large	Senior Manager	≥10 years
Producer D	Medium	Chief Executive Officer	≥20 years
Producer E	Medium	Senior Manager	≥20 years

3.3.1.2 Data analysis

The interview data were transcribed verbatim and uploaded into the NVivo qualitative analysis software. Codes and themes were developed from the transcriptions. A thematic analysis approach was used to identify and develop meaningful themes. Following Guest et al.[60], a total of 21 codes were identified, with the majority (15 codes, 71%) emerging in the first five interviews, and the remaining six codes (100%) appearing by the ninth interview, indicating that data saturation had been reached.

3.4 Ethical Approval and Respondents' Consent

Ethical approval was obtained from the Ethics Committee for Research Involving Human Subjects, UPM (reference number: JKEUPM-2022-029). In addition, permission was obtained from the Ministry of Education and the State Department of Education. The evaluation also adhered to the 2020 Ethical Guidelines for Evaluation by the United Nations Evaluation Group (UNEG) (http://www.unevaluation.org/document/detail/2866).

Before data collection, school-teachers distributed an information sheet about the evaluation to parents, and written informed consent was obtained from parents or guardians. In in-depth interviews, respondents received an information sheet, and written informed consent was obtained.

3.5 Gender Equality, Disability Inclusion and Equity

Gender, location, age, and disability were considered in the sampling design to ensure equity and inclusion.

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4.1 Relevance

4.1.1 Adequacy of the SSB tax rate

The WHO urges countries to introduce or increase existing SSB taxes to raise the prices of unhealthy products, lessen demand, and reduce consumption[61]. The World Bank recommends that, "governments impose taxes on SSBs that raise retail prices by at least 20.0% to reduce consumption and improve population health"[41]. In line with these recommendations, the Malaysian Government introduced SSB taxation on 1 July 2019 to reduce SSB consumption among Malaysians.

An SSB tax rate of MYR1.96 per litre is projected to raise retail prices by approximately 20.0%, and reduce SSB consumption by 22.0%[55]. However, the current tax rate implemented in Malaysia at MYR0.40 per litre, is estimated to increase retail prices by only 8.3%, leading to an estimated 9.3% reduction in consumption of SSBs[55]. This rate falls short of the 20.0% price increase recommended by the World Bank[55]. Several studies, including those conducted in Mexico, Barbados, and the United Kingdom, show a decline in SSB sales following the implementation of a tax rate of at least 10.0%, with a pass-through rate of 30.0% or more[41]. Given Malaysia's lower tax rate, only minimal reductions in consumption are expected.

4.1.2 SSB tax revenue for public health funding

The World Bank also suggested that the revenue collected from the SSB tax could be "directed toward programmes and services that improve population health"[41]. Currently, in Malaysia, all excised duty revenue, including that from SSB tax, is deposited into a consolidated fund account. Ministries and government departments could apply for funds from this account to support their respective programmes.

> **"In my opinion, this tax usually goes into a consolidated funds account, so it cannot be said that this pool of money is for special use. For example, a certain amount collected from the sugary drink tax is then allocated by the Ministry of Finance to other ministries based on government budget."**
> *– Ministry A*

Respondents generally supported the allocation of SSB tax revenue towards health campaigns, particularly to increase public awareness of the impact of sugar consumption. Some also suggested channelling parts of the fund into health research programmes.

> **"So, from the aspect of revenue collection from the sugary drink tax, I fully agree that it will be used for the purpose of increasing public awareness regarding the dangers of consuming too much sugar and also the benefits of reducing the amount of sugar in food and drinks."**
> *– Ministry B*

According to data from the Royal Malaysian Customs Department, SSB tax revenue from January 2020 to May 2022 amounted to MYR198.6 million[55]. Since this revenue is pooled into a consolidated account, there is no specific earmarking of the SSB tax revenue. Nevertheless, the MOH may apply for funds to conduct health-related programmes or interventions. In 2021, the allocation and expenditure for public health programmes were MYR5.0 billion and MYR5.7 billion, respectively[62]. The operating budget allocation by the MOH for public health programmes was the second highest (right after medical programmes)[62].

Studies show that interventions or programmes that are not accompanied by a clear message to protect public health will encounter more resistance[63,64]. Without earmarking the SSB tax, the public may perceive the tax as solely a revenue-raising mechanism. Previous studies indicated that the public would be more supportive of the SSB tax if its revenue were earmarked for children's nutrition and physical activity programmes[65], as well as other health-related programmes[64]. Thus, earmarking tax revenue for social or public goods can increase public and political support for the SSB tax.

4.1.3 SSB tax awareness

According to the Theory of Change (ToC), the implementation of an SSB tax is intended to increase public awareness of the negative health effects of SSB consumption. One of the key policy goals of the SSB tax in Malaysia aligns with this ToC, "delivering a message to the public that the government is concerned about their health" (refer to Section 1.3). However, the awareness of the tax remained low, with only 26.0% of adolescents and 35.3% of parents knowing about the SSB tax **(Figure 6)**. Unexpectedly, those who were aware of the tax consumed a higher volume of SSBs (924.71 mL/day) than those who were not aware (800.60 mL/day) (Section 4.3.3.1 discusses SSB consumption in more detail).

Moreover, adolescents demonstrated poor knowledge, while parents had moderate knowledge, regarding sugar and SSB consumption **(Figure 7)**. These findings suggest that the SSB tax did not effectively raise awareness about the negative effects of SSBs and sugar on health, as expected from the ToC. The current low tax rate may not be sufficient to change behaviour and attitudes towards SSB consumption. To make the tax more effective in achieving its intended goals, it may be necessary to increase the tax rate and promote its benefits to the public through education and awareness campaigns.

Figure 6

Awareness of the SSB tax and average daily SSB consumption among adolescents and parents, stratified by awareness status

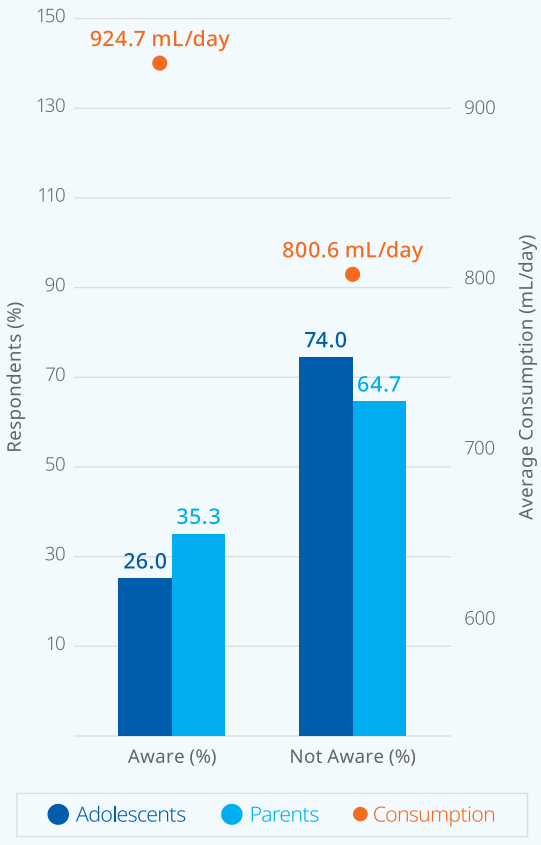
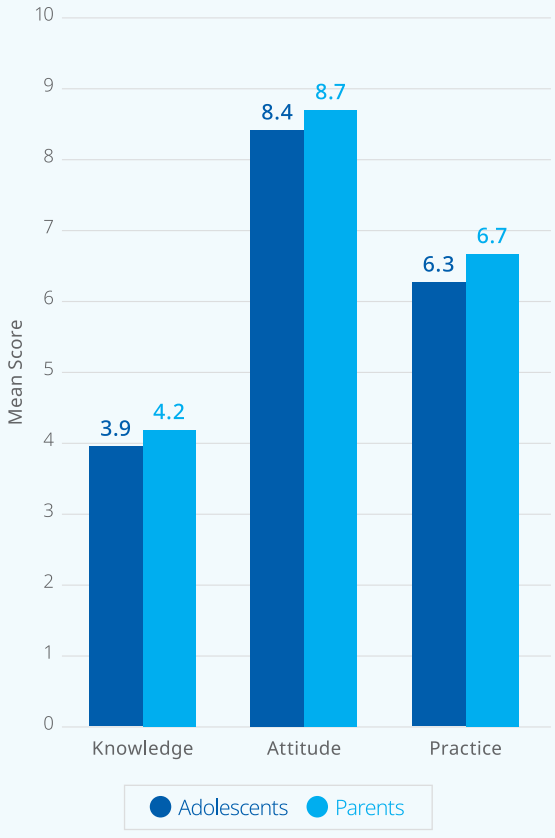


Figure 7

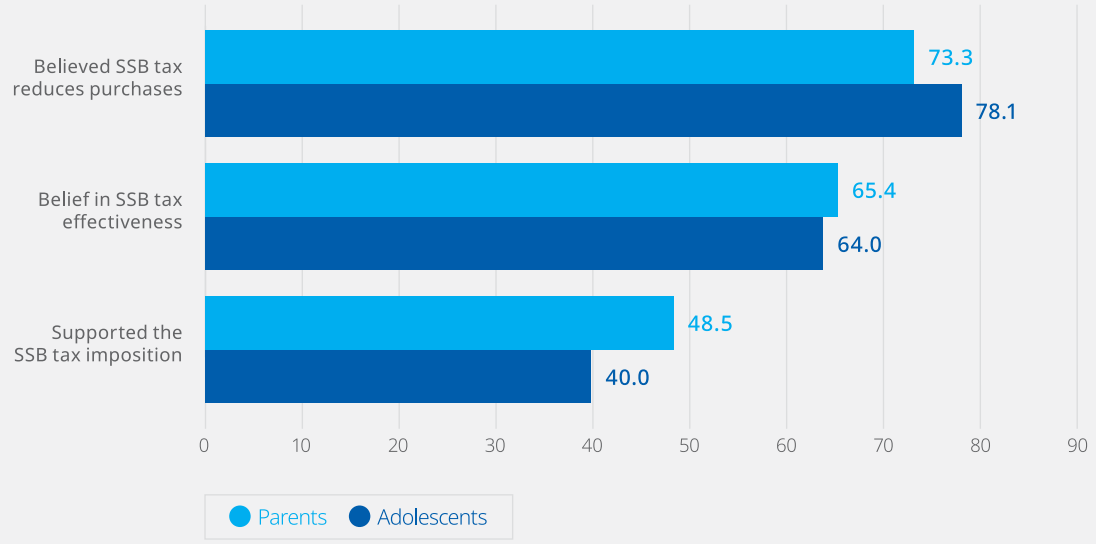
Knowledge, attitude, and practice (KAP) levels regarding SSB consumption among adolescents and parents



Despite low levels of awareness, support for the policy was moderate. Approximately 40.0% adolescents and 48.5% parents supported the SSB taxation **(Figure 8)**. Among those who were aware of the SSB tax, about 64.0% of adolescents and 65.4% of parents believed it to be effective, while 78.1% of adolescents and 73.3% of parents claimed that the policy helped them to reduce their SSB purchases. Although awareness of the SSB tax was low among adolescents and parents, many appeared to support its implementation.

Figure 8

SSB tax support among all respondents, and perceived effectiveness and purchasing impact among tax-aware adolescents and parents



RELEVANCE SUMMARY

- **The SSB tax is relevant in the Malaysian context.**
- **This is due to the increasing prevalence of overweight and obesity among Malaysian children and adolescents.**
- **However, the current SSB tax rate of MYR0.40 per litre is low.**
- **The SSB tax revenue is pooled into a consolidated funds account.**
- **There is no earmarking of SSB tax revenue for public health purposes. Information on the intent of SSB tax to curb obesity/overweight could not be provided.**

4.2 Effectiveness

4.2.1 Changes in SSB retail prices

With a price elasticity of -1.11 for demand of SSBs in Malaysia, it was predicted that MYR1.96 per litre tax would increase SSB retail price by around 20.0%, and decrease consumption by 22.0%[55]. In contrast, the current tax rate of MYR0.40 per litre is estimated to increase retail prices by only 8.3%[55]. However, the retail price data of SSBs shows that the actual incremental retail price data, on average, is only 2.2% **(Table 11)**. This is even lower than the predicted price increase of 8.3%, indicating that the tax rate does not lead to the expected increase in retail prices.

Table 11

Changes in the percentage of real retail prices for SSB products (in MYR)

Product of SSBs	HCL	Real Price 2019 Q2	Real Price 2019 Q3	Changes in Real price	Percentage Changes Real Price between Q2 and Q3
Coca-Cola (can) (320 mL)	Yes	1.13	1.17	0.04	3.5%
F&N Oren (can) (325 mL)	Yes	1.11	1.10	-0.01	-0.9%
Pepsi-Cola (can) (330 mL)	Yes	1.13	1.14	0.01	0.9%
Seven Up Lemon & Lime (can) (320 mL)	Yes	1.10	1.15	0.05	4.5%
Red Bull (bottle) (150 mL)		1.12	1.14	0.02	1.8%
Livita With Honey (bottle) (150 mL)		1.58	1.60	0.02	1.3%
Jus Oren Peel Fresh (Marigold) (1 litre)		3.98	4.18	0.20	1.17
Jus Oren Sunkist (1 litre)	Yes	3.74	3.99	0.25	5.0%
Susu Segar Dutch Lady (1 litre)	Yes	5.35	5.20	-0.15	6.7%
Susu Marigold HL (1 litre)		5.13	5.18	0.05	-2.8%
CPI		**112.3**	**112.5**		

Note: CPI = Consumer price index; HCL = Healthier Choice Logo; SSBs = sugar-sweetened beverages.

4.2.1.1 Response of producers to SSB tax

As the tax rate was quite low, some producers could absorb the tax, preventing it from being fully passed on to consumers. The three large SSB producers interviewed revealed that they either fully absorbed the tax or passed on half to consumers.

> **"Yes, we raised price by 3.0% and partially passed the cost to consumers."**
> *– Producer B*

> **"Our main products are based on dairy raw materials. So, in terms of dairy raw materials, the price has already increased many years ago. As a food company, we wish to hold prices and not to increase them, bearing the cost as much as we can. Due to recent SSB tax provision and other external factors, we have to increase the price by partially passing the cost on to customers."**
> *– Producer C*

However, not all producers could afford to absorb the SSB tax. The two SME producers interviewed expressed varied responses. One SME producer claimed to have reformulated their products to be non-taxable. Another SME producer attempted reformulation for a few months, but found it difficult to maintain and faced rejection from consumers. This producer eventually decided not to pay the SSB tax.

> **"We fully absorbed the cost for a few months, but we found a lack of acceptance of the drink products when low amounts of sugar were used. Hence, we absorbed the SSB tax only for a few months, then we stopped paying the tax. We broke the law, as that cost would have jeopardized our company."**
> *– Producer D*

4.2.2 Reformulation

In the context of producing healthier products, the implementation of the SSB tax encouraged reformulation activities, especially among large producers, to reduce sugar content in their products. Several large producers started reformulation activities when the SSB tax was introduced, even though the tax had not yet been enforced. In this evaluation, the three large producers reformulated at least 50.0% of their SSB products. They planned to gradually enhance their products' quality, offering healthier drinks that customers would accept.

> **"If I can say more than 50.0% - Yes, for now. During the implementation of the tax, about 50.0% of our products have been reformulated. But now 50.0% is left, because Product X is beyond our control, and it depends on Company X's formulation."**
> *– Producer B*

Despite the need for reformulation, SME producers tend to engage in it less frequently. This could be due to a lack of resources and infrastructure, which places them at a disadvantage compared to larger producers. Concerns also exist regarding customers' acceptance of the reformulated products and their taste.

> **"Yes. We are trying to reformulate two products, such as fruit juices and carbonated drinks, by reducing the sugar content. Unfortunately, they are not accepted by society."**
> *– Producer D*

Overall, most SSB producers interviewed were proactively reformulating their products or were at least aware of reformulation activities. The reformulation activities may not be due solely to tax exemptions, but also from awareness of the need to produce healthier products.

> **"Our company has championed nutrition, health, and wellness for over 100 years in Malaysia. Our commitment is to provide consumers with healthier and tastier products, and in line with this, we will continue to reformulate our products where relevant, even those not within the scope of the SSB tax..."**
> *– Producer B*

> **"Yes. I wouldn't say it is purely due to the tax. We (the producer) are actively trying to provide healthier drinks to customers since before the implementation of the SSB tax - by reducing sugar content. Fortunately, when the SSB tax came into effect, it encouraged our company to progressively reformulate these products."**
> *– Producer C*

4.2.2.1 SSB reformulations through HCL 2.0

The introduction of HCL 2.0 also played a role in encouraging reformulation. The HCL was introduced in 2017 by the MOH as "a criteria-based front-of-pack scheme that is intended to provide point-of-sale information to the consumers in making informed food choices by merely looking at the front of the food packages"[66]. The objectives of HCL are:

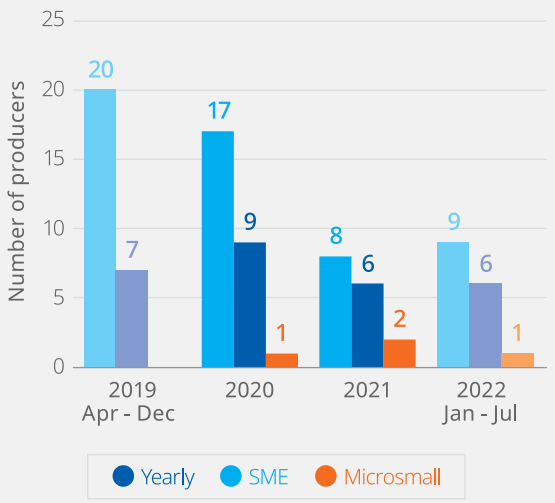
(i) to assist consumers in making informed food choices;
(ii) to help consumers identify healthier food products in the same category of food;
(iii) to encourage the food and beverage industries to reformulate and produce healthier products; and
(iv) to provide an environment that supports healthy eating practices.

Packaged foods and beverages can be awarded the HCL if they meet the nutrient criteria specified by the MOH. The number of reformulated products has increased since 2019. In 2022, a total of 479 SSB products have been reformulated and granted HCL 2.0 by the MOH **(Figure 9)**. After the implementation of the SSB tax in July 2019, many HCL 2.0 applications were approved for SSB, resulting in increase in products granted HCL 2.0 in 2020. However, it should be noted that once a product has been granted HCL 2.0, the logo is valid for two years before a new application needs to be submitted. This may explain the drop in products with HCL in 2021. The number of products with HCL 2.0 increased again in 2022.

Figure 9
Total number of SSBs products with HCL 2.0

Light-coloured bars signify time period of less than one year

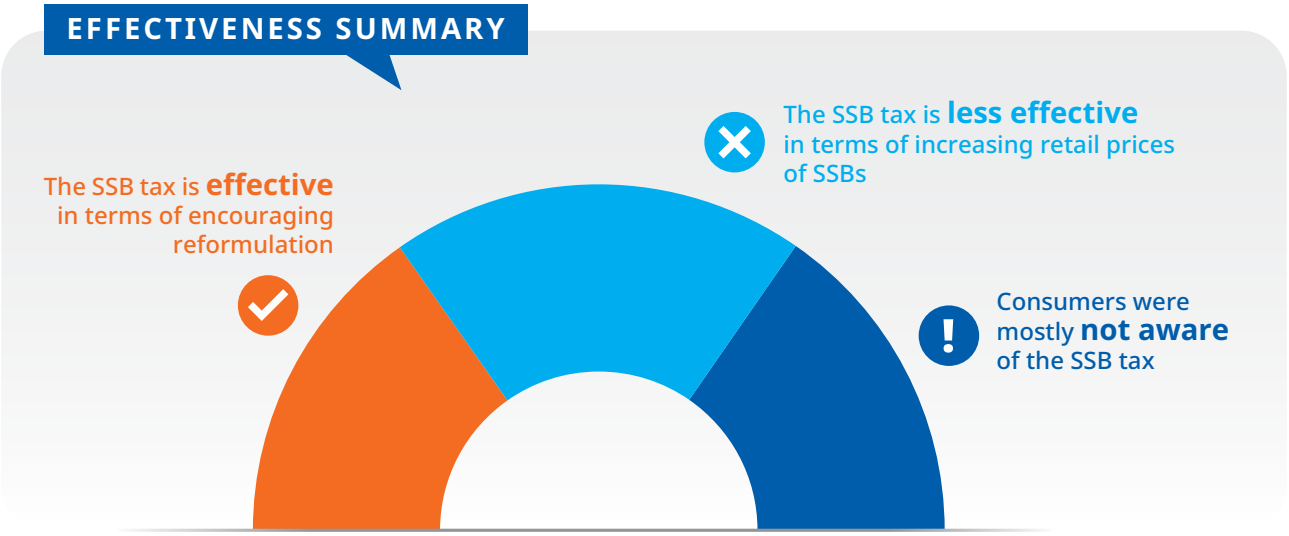
Figure 10
Total number of producers with HCL 2.0



Light-coloured bars signify time period of less than one year

Note: Categorization of business level: Multinational (large) with more than RM20 million sales turnover or more than 75 full-time employees; SME with less than RM20 million annual sales turnover or have less than 75 full-time employees; and Micro-small with less than RM300,000 or have fewer than 5 full-time employees.

As shown in **Figure 10**, most of the producers granted HCL 2.0 were multinational producers, followed by SMEs and micro-small enterprises. Reformulation can be technically challenging for producers, as they need to preserve the products' profiles. Reformulating SSB products is also a costly process, resulting in additional costs for the producers. They spend more on research and development (R&D) to develop new formulations for products with less sugar (or with artificial sugar as replacements), packaging and/or labelling. Large producers may have the necessary resources to reformulate their products, but producers from SMEs may face challenges in reformulating.



4.3 Impact

4.3.1 Producers' employment and investment

In general, most producers were able to maintain their competitiveness after the SSB tax implementation. Some producers maintained the extra working hours, number of workers and number of shifts to minimize production costs. In fact, some producers hired additional workers for their reformulation activities.

4.3.2 Producer sales

There are mixed effects of the SSB tax on the sales of SSBs. The impacts depend on the size of the producers. For large producers, the SSB tax did not significantly affect their sales, which implies that the tax did not affect their competitiveness. They also claimed that their reformulated products were well received by their consumers and ultimately did not affect their current market share.

In contrast, SME experienced reduced SSB sales, which implies that the SSB tax negatively affected their competitiveness. Nonetheless, one producer from the SME category claimed its business could be sustained after the tax implementation due to the business plan provided by management. They were able to increase income by relying on the Original Equipment Manufacturer (OEM) business model.

> **"...other beverage products such as carbonated and non-carbonated drinks, can still be sustained in the market because of business plan provided by management to increase income through OEM business model. In fact, we ensure all our products meet the HCL criteria to be tax-free, due to product reformulation."**
>
> *– Producer E*

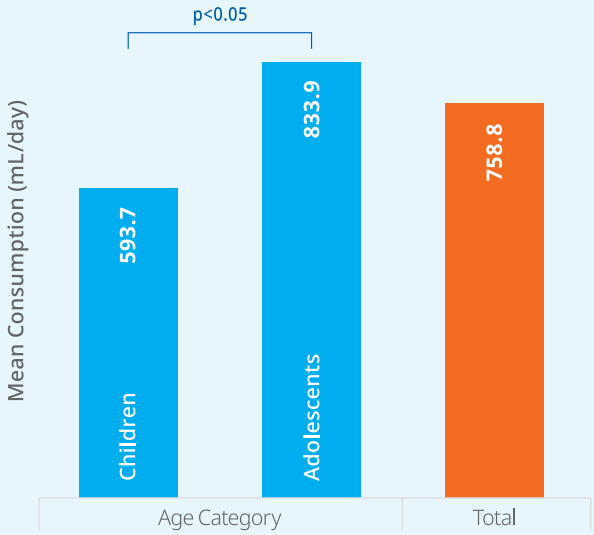
4.3.3 SSB consumption in children and adolescents

Respondents reported consuming an average of 758.79 mL/day of SSBs (approximately 3 glasses of SSBs per day; 1 glass = 250 mL). A previous local study involving 421 adolescents in Gombak district, Selangor, reported a higher daily SSB consumption of 1,038.15 mL/day[24]. Meanwhile, another local study involving 2,021 adolescents across Malaysia reported a median daily SSB consumption of 345.1 mL/day[67]. Another study involving 873 adolescents in the Federal Territory of Kuala Lumpur found that the average SSB volume consumed was 177.5 mL/day[68]. However, these reported volumes of daily SSB consumption should be interpreted with caution due to discrepancies in SSB definitions and classifications. Furthermore, there are limited local studies investigating the daily volume of SSB consumption before and after the SSB tax implementation. Consequently, this evaluation could not directly measure the changes in SSB consumption among children and adolescents before and after the implementation of the SSB tax.

In addition, the findings of this evaluation showed that adolescents aged 10 to 17 years old consumed a significantly higher volume of SSBs (833.92 mL/day) compared to children aged 7 to 9 years old (593.65 mL/day) **(Figure 11)**. No significant differences in SSB consumption were found between male and female children and adolescents (Section 4.4.1).

Figure 11

Mean volume of SSB consumed (mL/day) according to gender and children/adolescents categories

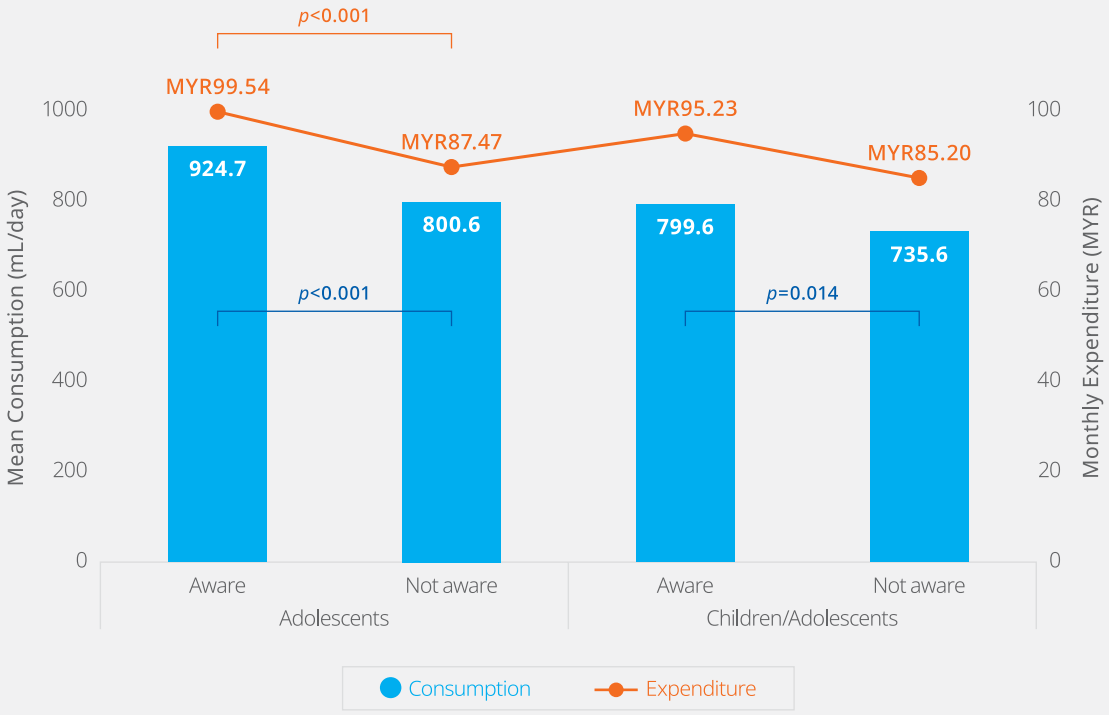


4.3.3.1 SSB consumption based on tax awareness

SSB tax implementation did not have a significant impact on SSB consumption. Those who were aware of the SSB tax still consumed a high volume of SSBs (as discussed in Section 4.1.3). Adolescents who were aware of the SSB tax consumed significantly more SSBs (924.71 mL/day) compared to those who were not aware of the tax (800.60 mL/day) **(Figure 12)**. Adolescents with parents who were aware of the SSB tax also consumed a significantly higher amount of SSBs (799.58 mL/day) compared to those with parents who were not aware of the SSB tax (735.57 mL/day).

Figure 12

SSB daily consumption and monthly expenditure among adolescents and children/adolescents, by awareness of the SSB tax



Household with adolescents who were aware of the SSB tax spent more on SSBs (MYR97), as did households with children or adolescents whose parents were aware of the tax (MYR95). These findings show that the low SSB tax rate did not significantly affect the purchase and consumption of SSBs among children and adolescents. This contrasts with the study among adults in Mexico, where awareness of SSB tax was associated with decreased SSB consumption[69], possibly be due to a higher tax rate. The Mexican government implemented a tax of 1 peso per litre, resulting in an approximately 10.0% price increase, which is substantially higher than the 2.2% in Malaysia. The study further suggested that the coordination of the SSB tax and highly visible health campaigns may further influence the impact of taxes on SSB consumption[69].

4.3.4 SSB consumption post-tax implementation

About half of the children (54.5%), adolescents (45.1%), and parents (53.8%) reported a reduction in SSB consumption after the tax was implemented **(Figure 13)**. Among those who reported a reduction in SSB consumption, 66.6% of adolescents and 73.3% of parents reduced SSB consumption due to an increase in health awareness **(Figure 14)**. Only 21.6% of adolescents and 24.2% of parents reduced their SSB consumption due to an increased SSB price.

Figure 13

Changes in SSB consumption of children, adolescents and parents' post-tax

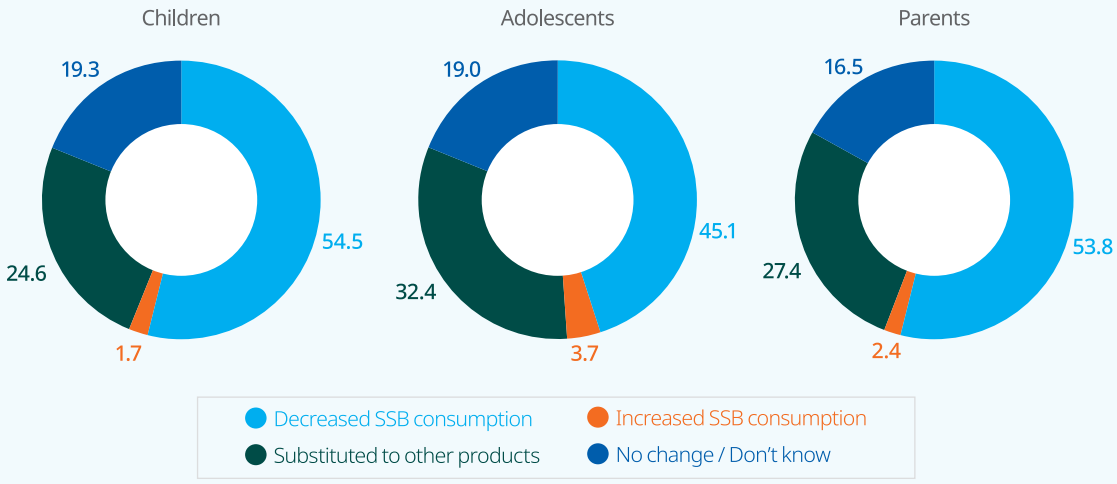
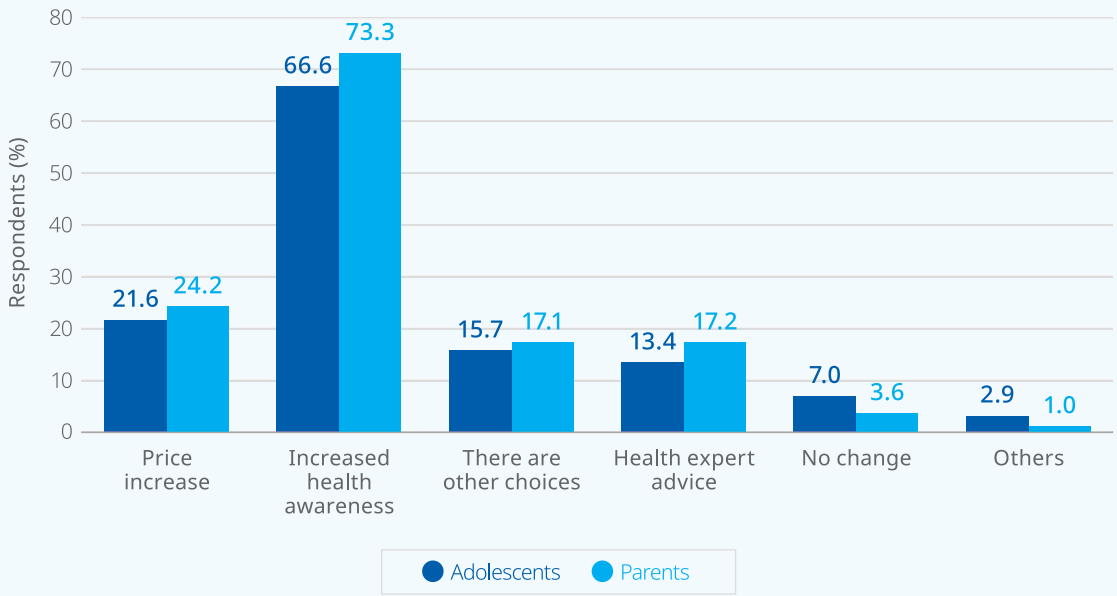


Figure 14

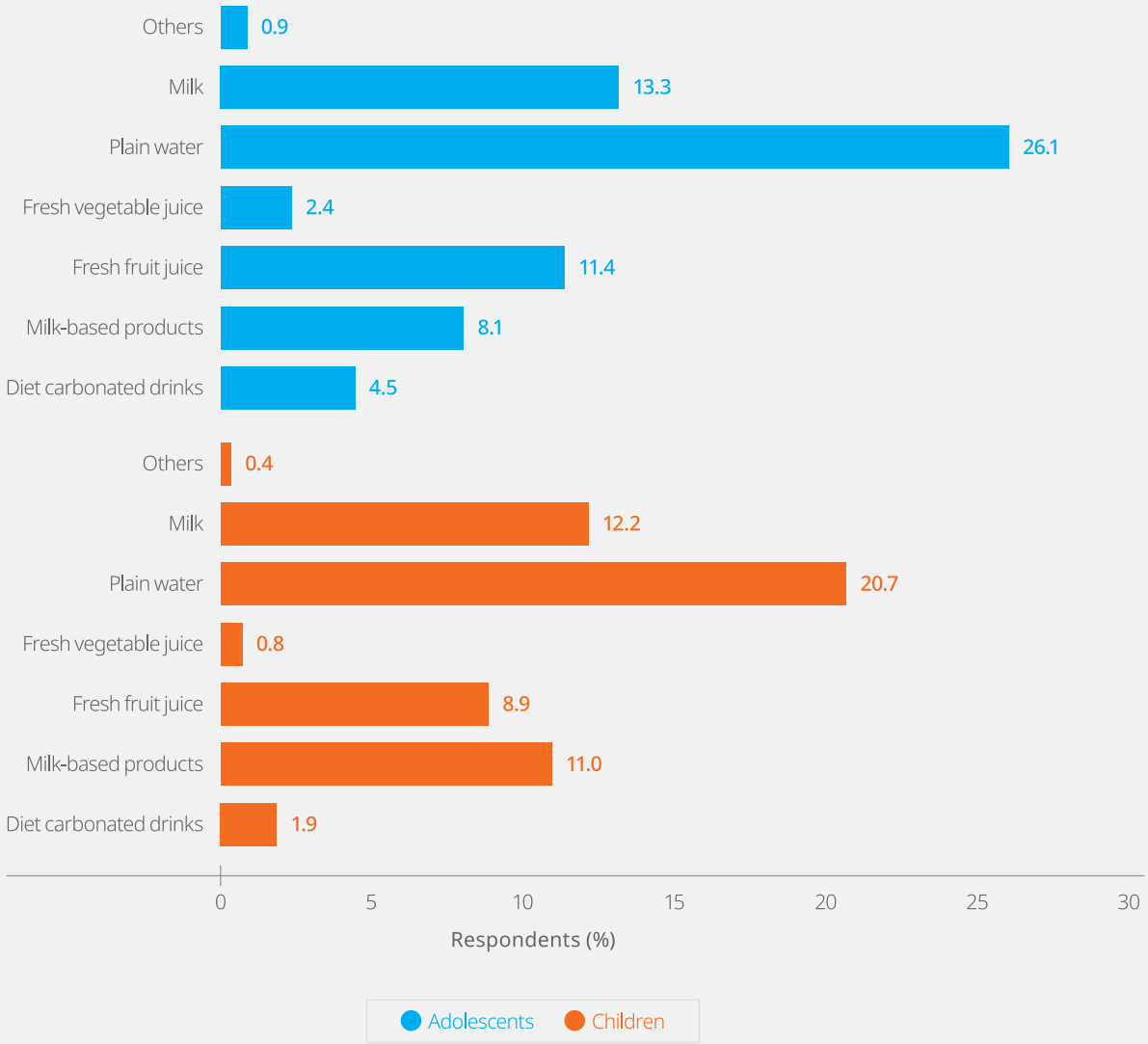
Reasons for reducing SSB consumption among adolescents and parents



A closer look at the data among adolescents (n=907) who were aware of the SSB tax showed that about half of them (50.6%) reduced SSB consumption, while 34.7% substituted SSBs with other products. The top three substitutions chosen by adolescents were plain water, fruit juices and milk **(Figure 15)**. Among parents who were aware of the SSB tax (n=1,752), about 54.5% reported their children had reduced SSB consumption, while 24.6% reported their children substituted SSBs with plain water, milk and milk-based products.

Figure 15

Substitution products among adolescents who were aware of the SSB tax and children whose parents were aware

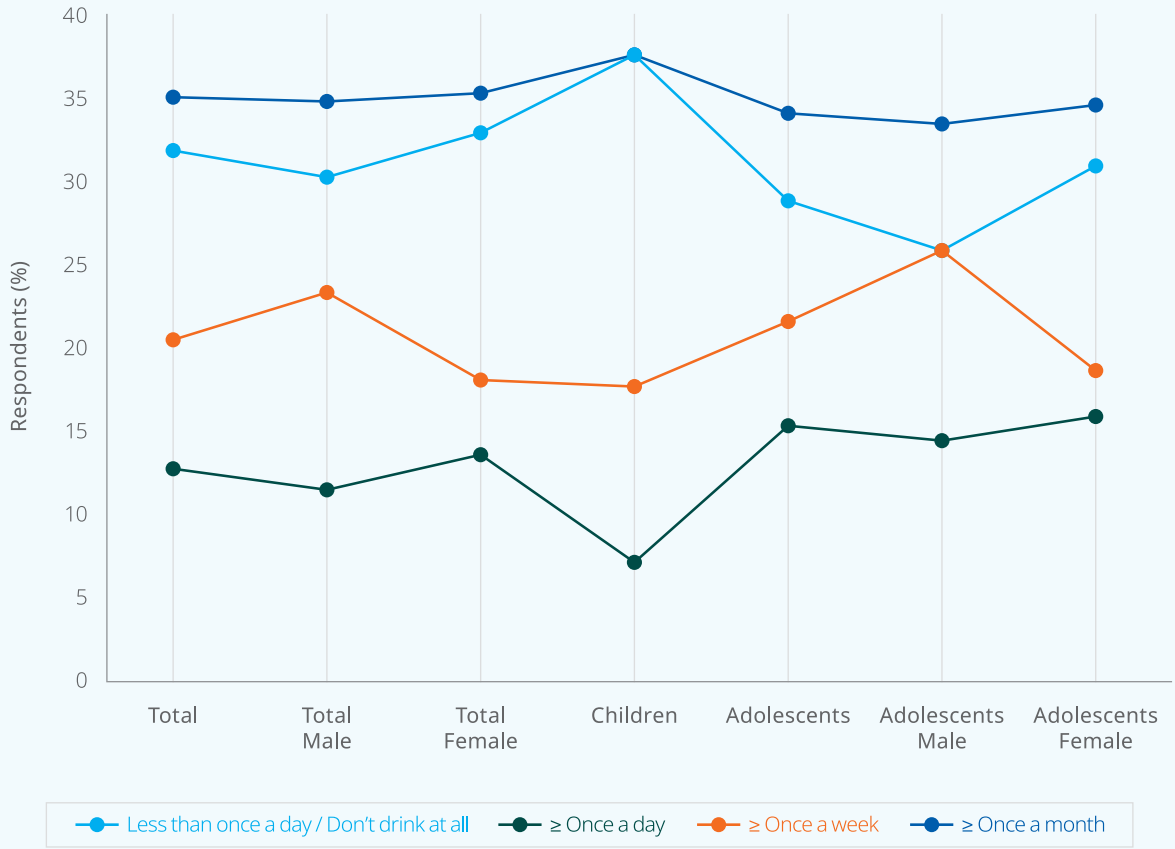


4.3.4.1 Comparison with NHMS 2017

The consumption of carbonated drinks at least once per day among children and adolescents aged 7 to 17 years was 12.8% (n=656) **(Figure 16)**. A slightly higher percentage of females (13.6%, n=401) consumed carbonated drinks at least once per week compared to males (11.5%, n=255). Among children aged 7 to 9 years, the consumption of carbonated drinks was 7.1% (n=117), with 8.0% (n=65) among females and 6.3% (n=52) among males. Meanwhile, among adolescents aged 10 to 17 years, about 15.3% (n=538) consumed carbonated drinks at least once per week, and a higher percentage of females (15.9%, n=336) consumed carbonated drinks at least once per week compared to males (14.5%, n=202).

Figure 16

Carbonated drink consumption in the preceding month among children (ages 7-9) and adolescents (ages 10-17)



Current findings indicate a lower prevalence of carbonated drinks consumption among adolescents aged 13 to 17 years (16.4%, n=359), compared to the data in NHMS 2017 (36.9%) **(Table 12)**. Since the evaluation was conducted during the Recovery Movement Control Order (RMCO), their attendance to schools was affected. Thus, their accessibility to purchase and consume SSBs outside the school compound was lower compared to normal school days. One of the key factors significantly associated with SSB consumption (refer to Section 4.5). This finding is consistent with other studies that suggest the food environment can influence children's dietary habits and overall health[70,71].

Despite the existence of guidelines from the Ministry of Local Government Development and the MOH regarding the sale of food and beverages around school compounds, compliance with these guidelines has not been satisfactory[72,73]. Furthermore, studies have shown that SSB consumption of children decreased during the COVID-19 lockdown period, which could be attributed to social restrictions and remote learning measures[74,75]. However, it should be noted that the observed decrease in carbonated drink consumption in this evaluation cannot be solely attributed to the SSB tax, as the comparison was limited to carbonated drinks and did not include all types of SSBs.

Table 12

Comparison between findings from this evaluation with findings of NHMS 2017 and SEANUTS II – carbonated drink consumption (% of respondents) in the preceding month

	NHMS 2012 (GSHS)	NHMS 2017	SEANUTS II	This evaluation		
Year of study	2012	2017	2021	2022		
Age range (years old)	13 to 17	13 to 17	0.5 to 12.9	7 to 17	10 to 17	13 to 17
Findings (%)	29.4	36.0	13.0	12.8	15.3	16.4

IMPACT SUMMARY

The SSB tax had no significant impact on employment, number of shifts, and working time

There was a slight increase in reformulation

Most adolescents and parents reduced SSB consumption mainly due to increased health awareness

4.4 Gender and Equity

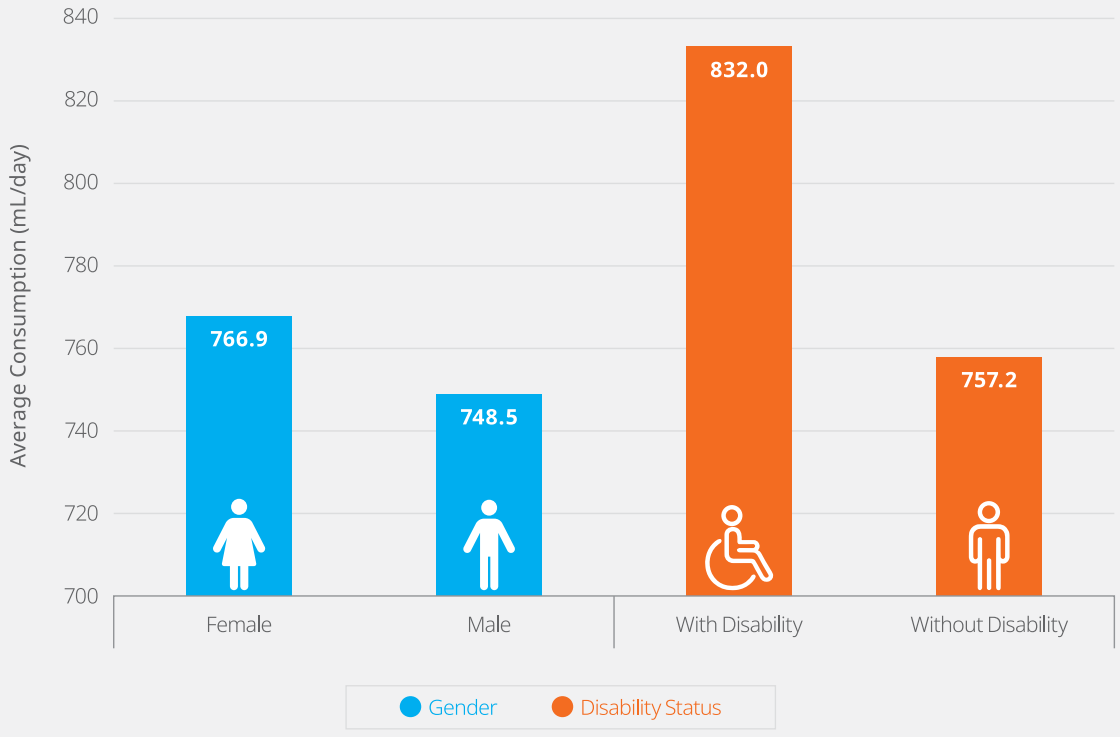
4.4.1 Gender and disability status

Female children and adolescents consumed slightly more SSBs (766.9 mL/day) compared to their male counterparts (748.5 mL/day) **(Figure 17)**. Although not statistically significant, female adolescents may consume more SSB due to their sedentary behaviour and greater exposure to screen time[76]. This finding indicates that, despite the gender differences, SSB consumption has become a frequent and regular dietary behaviour among children and adolescents, which will probably develop into a habitual behaviour[77].

There was also no significant difference in awareness and perception of the SSB tax between genders. This indicates that the tax implementation did not have disproportionate impacts on different genders. Similarly, there is no significant difference in SSB consumption between individuals with disabilities (832.0 mL/day) and those without disabilities (757.2 mL/day). Households with children with disabilities did not experience disproportionate effects on SSB consumption from the tax.

Figure 17

Consumption of SSBs by gender and disability status

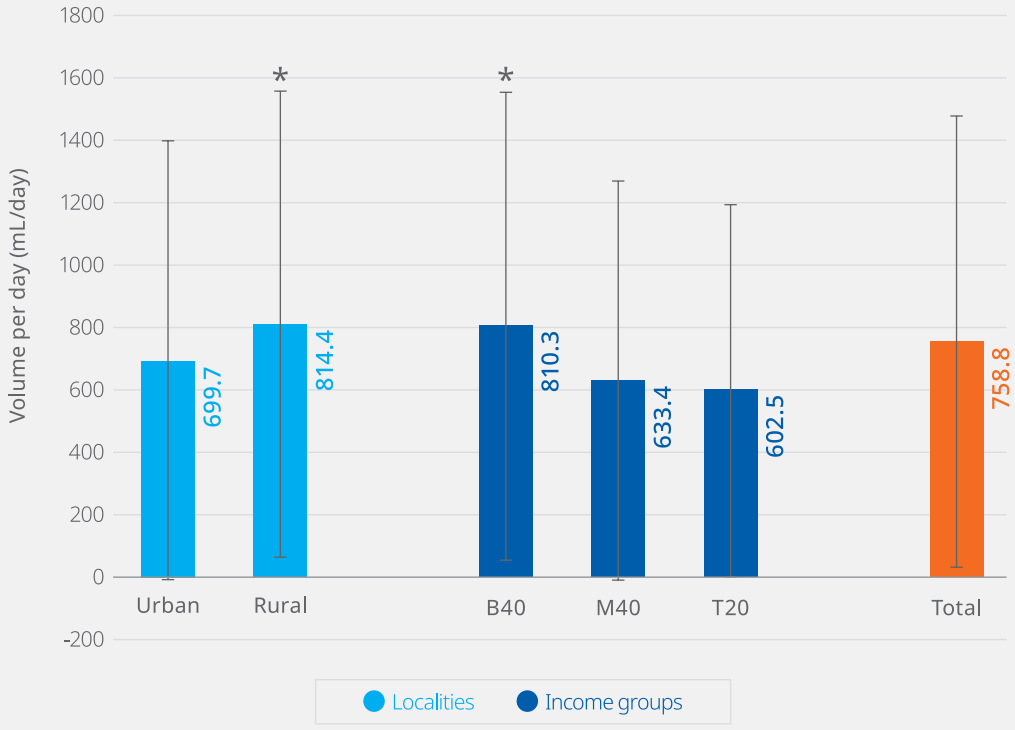


4.4.2 Socioeconomic status

Respondents living in rural areas consumed more SSBs (814.5 mL/day) than those in urban areas (699.7 mL/day) **(Figure 18)**. This finding is consistent with the national survey (NHMS) conducted in 2017, which reported that adolescents in rural areas consumed an average of 364.2 mL/day of SSBs, compared to 326.6 mL/day among adolescents living in urban areas.

Figure 18

Mean total volume of SSB consumption (mL/day) based on localities and income groups. *Significance level p<0.05



The income groups were classified according to the total gross monthly income classifications from the Household Income and Basic Amenities Survey (HIS) Report 2019[78], as shown in **Table 13**:

Table 13

Classifications of total gross monthly income in Malaysia[78]

Categories	Abbreviation	Monthly income range
Low income	B40	≤ MYR4,849
Middle income	M40	MYR4,850 - 10,959
High income	T20	≥ MYR10,960

Implementing a flat tax on SSBs, regardless of income groups, is considered regressive. It is expected to have a greater impact on lower-income groups as they are more price-responsive and likely to reduce their spending on SSBs[79]. Consequently, the lower-income groups were anticipated to experience more health benefits compared to higher-income groups. However, the evaluation revealed that there were no differential impacts on SSB spending or consumption across income groups.

On average, respondents spent about 2.5% (MYR 88.58) of their total monthly income on SSBs. The B40 group spent a higher proportion of their total monthly income on SSBs (4.8%; MYR85.02) compared to M40 (1.9%; MYR135.28) and T20 groups (1.1%; MYR166.10). The B40 groups also consumed a higher amount of SSBs per day compared to the M40 and T20 groups **(Figure 18)**. This may be due to the absence of a noticeable change in retail prices following the tax implemented (as discussed in Section 4.2.1). These findings indicate that vulnerable households were not disproportionately impacted by the SSB tax, with the B40 group spending a higher percentage of their income on SSB and consuming more SSBs compared to the M40 and T20 groups.

Notably, adolescents from the B40 group demonstrated the highest awareness of the SSB tax (27.7%) compared to those from the M40 (23.9%) and T20 (20.9%) income groups. This indicates that the awareness of the SSB tax does not necessarily lead to a change in behaviour, as it does not guarantee a reduction in SSB consumption. Factors that may contribute to the counterintuitive result include misunderstandings of the tax and the perception that SSBs are more expensive. In terms of SSB tax perception, a higher percentage of those from the T20 group (59.0% of adolescents and 61.9% of parents) believe the SSB tax would affect SSB price and consumers' purchasing abilities, compared to those from the B40 group (48.3% of adolescents and 54.3% of parents) and M40 group (53.1% of adolescents and 62.1% of parents).

GENDER AND EQUITY SUMMARY

- **Those living in rural areas and from low-income groups consumed a higher amount of SSBs per day.**
- **Low-income groups spent a higher proportion of their monthly income on SSBs than middle- and high-income groups.**
- **No significant differences in SSB consumption were observed between males and females, or between those with and without disabilities.**

There are four main factors identified as contributing to the high consumption of SSBs among children and adolescents in this evaluation. These factors are (i) environmental (high availability of SSBs at home; as well as high frequency of eating at restaurants, other premises, fast food and takeaways); (ii) socioeconomic (ethnicity and low household income); (iii) personal (low attitude score on SSB consumption in adolescents and poor knowledge score on SSBs among parents); and (iv) behavioral (high physical activity level; skipping all three main meals and frequent snacking). Among these, the availability of SSBs in the home (which is an environmental factor) had the strongest influence on SSB consumption **(Figure 19)**.

4.5 Factors: Additional Dimensions

Figure 19
Factors associated with SSB consumption among children and adolescents

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5 | Conclusions and Lessons Learnt

This study evaluated the relevance, effectiveness and impact of implementing the SSB tax in Malaysia. The government of Malaysia recognized the high consumption of SSBs in the country and the associated health problems, such as obesity and NCDs. The SSB tax was implemented as part of the strategy to combat obesity problems, which is associated with high consumption of SSBs.

The evaluation found that the tax led to only a minor increase in the retail prices of SSBs, smaller than anticipated. This is attributed to the current tax rate, which was too low at MYR0.40 per litre, allowing producers to absorb the cost rather than passing it on to consumers. This shows the tax design was not effective in increasing the price of SSBs.

Similarly, the tax has not significantly reduced consumption among children and adolescents, despite a slight decline compared to NHMS 2017. The decrease was mostly driven by health concerns rather than the price. Low awareness of the SSB tax among adolescents and parents may reduce their motivation to change behaviour or make informed beverage choices. Moreover, the tax does not apply to all sugary drinks, such as beverages served in eateries and cordials. In addition, the lack of complementary health promotion activities that encourage healthier options and emphasize the negative health consequences of excessive SSB consumption further limits its impact.

The tax has successfully encouraged efforts to produce healthier beverage options through product reformulation, especially among large producers. These growing reformulations trends could also create new employment opportunities and attract investments in the industry. However, small producers face challenges such as limited resources, costs, taste and texture issues, and marketing barriers. This highlights the need for government support and resources for small businesses. Additionally, gaps in enforcing the policy have further hindered effectiveness. Some producers reportedly do not apply the tax to their products, which lowers revenue collection and weakens the policy's impact.

Additionally, this evaluation highlights the need for an effective multisectoral advocacy and collaboration to improve the SSB tax policy, with the goal of reducing SSB and sugar consumption and, consequently, lowering rates of overweight, obesity, and NCDs. The government, along with key stakeholders such as international organizations and academics, should enhance public advocacy on the importance of SSB tax. Effective design and implementation of the tax require constructive collaboration between relevant stakeholders such as the Ministry of Finance, Ministry of Health, Ministry of Domestic Trade and Costs of Living, the beverages industry, academic researchers, civil society organizations, and non-governmental organizations (NGOs).

5.1 Lessons Learnt

Five main lessons have been drawn from the evaluation.

- **A low tax rate on SSBs was less effective in reducing consumption and improving public health outcomes.**
- **The scope of the tax should be broad enough to cover a wide range of sugary drinks, including premixed and ready-to-drink products.**
- **Effective implementation and enforcement of the tax are essential to ensure compliance and maximize revenue generated for public health initiatives.**
- **Public education campaigns can increase awareness and support for the tax, leading to better compliance and increased revenue generation.**
- **Revenue generated from the tax should be allocated to support public health initiatives such as nutrition education and school meal programmes, which can further reinforce the effectiveness of the tax.**

5.2 Limitations of the Evaluation

Several limitations constrain this evaluation. For instance, the NHMS 2017 data only included the prevalence of certain types of drinks, excluding some taxed SSBs implemented in 2019. Therefore, the data on SSB consumption among children and adolescents before 2019 is limited. The findings of this evaluation could thus be considered as baseline data on SSB consumption among children and adolescents, which can serve as a reference for future studies on the medium- and long-term impact of the SSB tax in Malaysia. The changes in retail price and sales data, non-price industry responses, and government expenditures of SSB tax revenues are all subject to the willingness of SSB producers and ministry representatives to divulge such information. Relevant information could only be obtained depending on the cooperation of the respondents. These limitations are listed in **Table 14**.

Table 14
Limitations of this evaluation

No.	Limitations	Consequences
1	Data collection was conducted during the Recovery Movement Control Order (RMCO) period in Malaysia. This resulted in limited movement and availability of respondents. Students were undergoing the rotation system *(penggiliran)* at schools.	Enumerators were not able to guide students in completing the self-administered questionnaires directly. However, instructions were given to teachers or school staff on how they could guide the students to complete the questionnaires. The in-depth interviews of SSB producers and stakeholders had to be conducted through online platforms. However, the evaluation team conducted face-to-face interviews whenever conditions permitted.
2	Questionnaire data on SSB consumption were self-reported by the respondents.	Caution should be exercised in interpreting the findings regarding SSB consumption, as the respondents may have either over- or underestimated their SSB consumption.
3	Inability to classify taxed and non-taxed SSB product categories from the list of beverages consumed by the respondents.	The categories of taxed and non-taxed SSB products could not be measured, as respondents would not know how to differentiate products that were taxed and those that were not.
4	Inability to measure the price changes and volume of taxed and non-taxed beverages sold by major grocery store chains before and after the SSB tax implementation.	Analysis was only conducted using relatively non-extensive price data from the Ministry of Domestic Trade and Consumer Affairs. Therefore, conclusions of the study need to be interpreted with caution and should take into account any risks of bias.

Table 14
Limitations of this evaluation *(continued)*

No.	Limitations	Consequences
5	Challenges in involving SSB producers and obtaining data.	Many producers, especially from the SME group, were hesitant or unwilling to participate in interviews about the SSB tax. They either did not reply to the interview invitation emails or declined the invitation. The evaluation team also had to deal with the postponement of interview sessions. In some interviews, it was challenging to obtain direct answers from the producers especially for questions on controversial issue such as the price increase of their SSB products.
6	This evaluation did not include other factors that could potentially affect SSB consumption.	There are other factors, such as environmental factors – for example parents' purchase of SSBs and family eating-out or takeaway that contribute to SSB consumption that were not captured in this evaluation.

5.3 Future Policy Expansion towards High-Sugar Content Foods and other Subgroups of Drinks

Another key policy goal of the SSB tax is the *"future policy expansion towards high sugar content of foods and other subgroups of drinks"* (refer to Section 1.3). The tax on SSB is planned to be expanded to other products, and implementation will occur in stages. In 2022, the government planned expansion of the tax to other drink categories, such as premixed drinks, including chocolate or cocoa, malt, coffee, and tea-based drinks that exceed the sugar threshold of 33.3 g/100 g[80]. The scope of the tax for SSBs will also be expanded to include sweetened condensed milk and cordials. Proposals also suggest covering food products high in sugar, salt, and fat, such as sauces, condiments, and pastries.

6 | Recommendations

Based on the findings, the evaluation team developed recommendations to further improve the implementation of the SSB tax in Malaysia. These were presented to the Reference Committee on 19 December 2022, and comments for further improvements were included in the recommendations **(Table 15)**.

Table 15
Recommendations of this evaluation

Recommendation	Priority	Relevant Stakeholders	Aligned to
Recommendation 1: Increase the SSB tax rate and strengthen enforcement of SSB tax implementation. a. Increase the SSB tax rate to raise the price of SSBs by at least 20.0%, in line with WHO recommendations. b. Strengthen enforcement of SSB tax implementation.	Medium-to long-terms	MOF, MOH and Customs	**Findings** Section 4.1.1
Recommendation 2: Provide incentives and support for the beverage producers (especially SMEs) to produce healthier beverages.	Medium-to long-terms	Selected ministries	**Findings** Section 4.2.1.1
Recommendation 3: Earmark higher proportion of the SSB tax revenue to increase dedicated funding for public health programmes and interventions.	Medium-to long-terms	MOF and MOH	**Findings** Section 4.1.2
Recommendation 4: Strengthen communication, health programmes and intervention targeted at rural areas and the B40 (low-income) group. i. Strengthen health communication campaigns on SSBs and sugar consumption. ii. Strengthen and expand intervention programmes in rural areas and for the B40 (low-income) group. iii. Carry out effective multisectoral advocacy and awareness on the goals of SSB tax, as well as the effects of SSB consumption and sugar consumption on health.	Medium-to long-terms	All relevant ministries and academia	**Findings** Section 4.4.2
Recommendation 5: Strengthen existing healthy eating programmes and restrict marketing and promotion of unhealthy food. • Strengthen existing programmes to recognize restaurants that promote healthy eating (MyChoice and MyMeal, etc). • Restrict marketing and promotion of unhealthy foods to children. • Strengthen healthy school meal programmes (HiTS). • Strengthen health communication campaigns in schools.	Medium-to long-terms	MOH and relevant ministries	**Findings** Section 4.5

Timeframes: Short-term: Less than 5 years; Medium-term: 5-10 years; Long-term: 10 years and above.
Abbreviations: Ministry of Finance (MOF); Ministry of Health (MOH); sugar-sweetened beverages (SSBs); World Health Organization (WHO).

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