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The Urgency of Sugar Sweetened Beverages Excise Policy: A Literature Study for Implementation in Indonesia

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Abstract. Diabetes diseases should become an alert for all people around the world, including Indonesia. Being one of the ten diseases that are classified as dangerous diseases, diabetes is estimated to infect 700 million people by 2045. Strategic steps must be taken by the Indonesian government, one of them is through the implementation of fiscal policy on the collection of Sugar Sweetened Beverages (SSB) Excise. Using secondary sources data through literature review by looking for information about countries that have implemented the SSB Excise, this paper goals are to analyze the urgency of implementing a SSB Excise that can be applied by the Indonesian government, by reflecting on the implementation of policies that have been implemented in other countries around the world. This paper is limited to the number of extensive and in-depth related research, and still not describe yet using a full detail research method about the evidence which related to the urgency of this excise policy, so it would be beneficial for other researcher, especially in Indonesia who would make it depth. The result of this paper is that the SSB Excise policy is appropriate and should be implemented in Indonesia, in the form of implementing the Excise Tax in the sugar sweetened beverage industry, which can imitate the excise policies of the UK & Thailand. So that the results of this SSB Excise revenue can be earmarked for the benefit of overcoming health costs caused by diabetes, as well as improving health-based public facilities.

Keywords: Sugar Sweetened Beverages, Excise, Diabetes

INTRODUCTION

The world should be aware of diabetes diseases. According to the International Diabetes Federation (IDF) in 2019, this disease is one of the 10 dangerous diseases that can lead to death, as well as being the main cause of diseases such as cardiovascular, kidney disease, tuberculosis, blindness (IDF, 2019), and has recently become a comorbid disease of COVID-19 (sdn.who.int). This is also agreed by the World Health Organization (WHO) on its website that diabetes can cause blindness, kidney failure, heart attacks, and strokes. Based on the data released by the IDF, as can be seen in the table below:

Figure 1. Estimated & Prediction of Diabetes Sufferer around the World

Source: International Diabetes Federation, 2019

Based on the figure 1 above, in 2019, it is predicted that the number of people with diabetes in the world will reach 463 million people, this number will increase by 51% in 2045, to reach 700 million people. For the North America & Caribbean region, it will increase by 33% (from 48 million to 63 million), the South and Central America will increase by 55% (from 32 million to 49 million), the Africa region will increase by 143% (from 19 million to 47 million), the Middle East & North Africa region will increase by 96% (from 55 million to 108 million), the European region will increase by 15% (from 59 million to 68 million people), Southeast Asia will increase by 74% (from 88 million people to 153 million people), and the Western Pacific region, which Indonesia is included in, will increase by 31% (from 163 million people to 212 million people). Based on these data, in general, all regions in the world will increase in the number of people with diabetes, with an average total of 51%. A number that is quite high, and will continue to increase drastically, if no preventive measures are taken.

After knowing the actual condition of diabetics in the world in 2019, then it can also be known about the predictions of an increasing conditions that will occur in the next 2 decades, as can be seen in the graph below:
Based on figure 2 above, the IDF states that in 2019 there were 463 million people in the world who were indicated to have diabetes. This number increased by 61.5% in the last decade (from 285 million people in 2009) and will continue to increase to reach 578 million people in 2030, and to 642 million people in 2040, if the government does not take it seriously. Furthermore, if we look at the order of the top 10 countries in the world that have the number of people with diabetes, it can be seen in Table 1 below:

Based on the data from the IDF above, there are 10 major countries in the world that are affected by diabetes. The country with the largest number of people with diabetes based on these data is China with the number of people with diabetes reaching 116.4 million people. In the second and third positions are occupied by India and the United States, with the number of people with diabetes reaching 77 million and 31 million, respectively. Indonesia, unexpectedly, occupies the seventh position with the number of sufferers reaching 10.7 million people. This indicates that Indonesia is one of the countries with the most diabetes sufferers in the world and should be an alert for the Indonesian government.

In more detail, in the WHO discussion paper on Regional Expert Consultation on Development of An Implementation Roadmap 2023–2030 For the Global Action Plan for The Prevention and Control of NCD’s 2013–2030, information was obtained that in 2020 WHO estimates that the number of deaths caused by Non-Communicable Disease increased significantly. Globally, 7 out of 10 diseases that caused death in 2019 were NCDs. All types of these diseases are estimated at 74% in 2019. The largest is ischemic heart disease with 16% of total deaths in the world.

In addition, based on WHO’s World Health Statistics 2020, progress in overcoming and controlling deaths from NCD’s has not been good enough when compared to the condition of NCD’s. It is estimated that 15 million people die due to NCD’s between the ages of 30-70 years and can be categorized as premature deaths. It is estimated that premature deaths in 2000 and 2016 decreased by 18%, of which 40% were chronic respiratory diseases, 19% were cardiovascular diseases and cancer. However, diabetes increased by 5% in the same period. In countries categorized as high-income countries, premature death decreased from 2000 to 2010, but increased in 2010–2016. In low- and middle-income countries, the premature death rate due to diabetes increased across both periods.

Furthermore, related to the data from the WHO and IDF, we can be bold the diabetes can be linked

![Figure 2. Graph of Prediction Increase on Diabetes Sufferer around the World (In Million Person)](source: International Diabetes Federation, 2019)

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**Table 1. The Table of Top Ten Countries with Biggest Diabetes Sufferer Around the World (Ages 20-79 Years Old) in 2019, 2030, & 2045.**

| Rank | Country or territory | Number of people with diabetes (millions) | Rank | Country or territory | Number of people with diabetes (millions) | Rank | Country or territory | Number of people with diabetes (millions) |
|------|----------------------|------------------------------------------|------|----------------------|------------------------------------------|------|----------------------|------------------------------------------|
| 1    | China                | 116.4 (108.6-145.7)                      | 1    | China                | 140.5 (130.3-172.3)                      | 1    | China                | 147.2 (134.7-178.2)                      |
| 2    | India                | 77.7 (62.4-94.6)                          | 2    | India                | 101.0 (81.9-122.6)                       | 2    | India                | 134.2 (108.5-165.7)                      |
| 3    | USA                  | 31.0 (26.7-35.8)                          | 3    | USA                  | 34.4 (29.7-39.8)                         | 3    | Pakistan             | 37.1 (32.6-42.5)                         |
| 4    | Pakistan             | 19.8 (14.9-25.7)                          | 4    | Pakistan             | 26.2 (20.9-32.6)                         | 4    | USA                  | 36.0 (31.0-41.6)                         |
| 5    | Brazil               | 16.8 (15.0-18.7)                          | 5    | Brazil               | 21.5 (19.2-24.6)                         | 5    | Brazil               | 26.6 (23.2-28.8)                         |
| 6    | Mexico               | 12.9 (12.8-15.0)                          | 6    | Mexico               | 17.4 (9.7-20.6)                          | 6    | Mexico               | 22.3 (12.7-26.8)                         |
| 7    | Indonesia            | 10.7 (9.2-15.2)                           | 7    | Indonesia            | 13.7 (11.9-14.9)                         | 7    | Egypt                | 16.9 (9.0-19.4)                          |
| 8    | Germany              | 9.5 (7.4-10.6)                            | 8    | Egypt                | 11.9 (6.4-15.3)                          | 8    | Indonesia            | 16.6 (14.6-18.2)                         |
| 9    | Egypt                | 8.9 (4.8-10.1)                            | 9    | Bangladesh           | 11.4 (9.4-14.4)                          | 9    | Bangladesh           | 15.7 (12.4-18.9)                         |
| 10   | Bangladesh           | 8.4 (7.9-10.7)                            | 10   | Germany              | 10.1 (8.4-11.3)                          | 10   | Turkey               | 10.4 (7.4-13.3)                          |

**Source: International Diabetes Federation, 2019**
with the level of consumption of SSB. Especially in Indonesia, according to data presented by Ferreti (in Fanda, 2020), Indonesia ranks third in Southeast Asia in terms of the amount of consumption of sweetened drinks, reaching 20.23 Liters/person/year. This high consumption will certainly have an impact on the mortality and morbidity rates of the Indonesian people, one of which is related to obesity, diabetes, and other diseases, which will also have an impact on the medical costs borne by BPJS Kesehatan.

In line with the statement conveyed by the Deputy Director for Primary Health Financing Insurance for the Social Security Management Agency, Ari Dwi Aryani, stated that the financing for Diabetes Mellitus (DM) services always increases from year to year. In 2017, the cost of DM services reached Rp84T for primary and referral services, then increased to Rp94T in 2018, and increased again to Rp108T in 2019. The average increase in 2017 reached Rp2T, in 2018 it reached Rp2.39T, and per year 2019 reached IDR 2.5T (liputan6.com). So, it can be concluded that there is an increase of 8% every year. This condition is exacerbated by the condition of the general risk factors for Non-Communicable Diseases (NCD), which are still relatively high, namely 33.5% do not do physical activity, 95% do not consume fruits and vegetables, and 33.8% of the population aged over 15 years are heavy smoker (kemkes.go.id).

In Indonesia, in connection to this SSB situation, there are some regulations that can be referred to, including Law No. 18 of 2012 concerning food and BPOM rules No. 21 of 2016 concerning Food Categories. Based on the law, in article 59, it is stipulated that in principle the government has the obligation to regulate how the consumption of food and nutrition circulating in the community is balanced, both in terms of quantity and quality. The regulation of this food consumption pattern, including that it must contain balanced, safe nutrition, and in accordance with the nutritional adequacy rate of the community. Furthermore, when referring to the BPOM regulation, it is sufficient to clearly regulate the types of sweeteners/sugar, along with their reasonable amounts that are safe for consumption, such as the use of sucrose, lactose, palm sugar, and other types of sugar. So that in principle, in Indonesia, the basics of good food consumption patterns have been regulated, which should be able to reduce the level of SSB consumption, which in fact has not been able to suppress the level of diabetics in Indonesia.

According to the Center for Health Policy and Management / Pusat Kebijakan dan Manajemen Kesehatan (PKMK) has issued a policy brief (in Fanda, 2020) which is expected to describe and overcome SSB consumption patterns in Indonesia. The options proposed include:

- Related to the fiscal policy that can be implemented by the government in terms of handling SSB and diabetes in Indonesia, there is Law Number 39 of 2007 concerning amendments to Law Number 11 of 1995 concerning Excise. Currently, the Act has not specifically regulated the types and items that are categorized as SSB, which can trigger diabetes. This is because the law only regulates excise on tobacco and alcoholic beverages. Based on this paper, the researcher wants to explain how the implementation of the SSB tax policy in other countries and how the form of the implementation of the SSB tax policy should be implemented by the Indonesian government when reflecting the policies that have been implemented in other countries.

In theory, SSB Tax, or many other terms in the world are used, such as Soda Tax, Sugar Tax, and Fat Tax, as quoted from the New Zealand Institute of Economic Research (NZIER, 2017), is a tax imposed to reduce consumption of sugar, which will have an impact on people's weight, and is also applied by many countries in the world. SSB Excise is generally caused by the condition of a country that has a community condition that is at a high level of death (death) and morbidity (disease, disability, health problems). In addition, there are pull risk factors that can cause these conditions, including:

- Based on the figure above, the number of causes of public health conditions, namely people's dietary conditions rank first with a total of more than 9% DALY (Disability-Adjusted Life Years), with the most common disease being Cardiovascular Disorder (CVD). In second place is the condition of High BMI in the community, with CVD being the most common disease, and CVD is also a disease that is often caused by almost all causes of people's poor lifestyles. Therefore, it can be concluded that CVD
is the most common disease caused by poor public health conditions.

Besides the CVD, there are other potential diseases, such as Diabetes Mellitus, which can endanger the community. Diabetes Mellitus (DM) is a chronic condition that arises due to high levels of glucose in the blood that cannot be controlled by the body’s insulin hormone, and/or the body cannot produce insulin effectively (IDF, 2019). According to WHO, there are at least two types of DM, namely type 1 diabetes, and type 2 diabetes. Type 1 diabetes is caused by an autoimmune reaction that attacks the insulin-producing organ in the pancreas. Symptoms in people with type 1 diabetes include a body condition that often experiences abnormal thirst and dryness, quickly feels lack of energy, and feels hungry quickly. While type 2 diabetes, is diabetes that is almost experienced by 90% of people in the world, where the body cannot produce insulin optimally. Symptoms include frequent urination, lack of energy, and blurred vision.

The criteria for diabetes mellitus and prediabetes, as referred to by the Indonesian Diabetes Association Team et al (Persadia, 2020), can be seen as follows:

| Table 3. Criteria for Diagnosis of Diabetes Mellitus and Prediabetes |
|---------------------------------------------------------------|
| **HbA1c (%)** | **Fasting Blood Glucose (mg/dL)** | **Plasma Glucose 2 hours after OGTT (mg/dL)** |
|----------------|-------------------------------|---------------------------------|
| Diabetes       | ≥6.5                          | ≥126                            | ≥200                           |
| Prediabetes    | 5.7—6.4                       | 100—125                         | 140—199                        |
| Normal         | <5.7                          | 70—99                           | 70—139                         |

Source: Persadia (2020)

For individuals who are categorized as normal person, have HbA1c of <5.7%, with fasting blood glucose of 70-99 mg/dL, and plasma glucose 2 hours after OGTT of 70-139 mg/dL. For individuals who are categorized as prediabetes person, they have HbA1c of 5.7 – 6.4%, fasting blood glucose of 100-125 mg/dL, and plasma glucose 2 hours after OGTT of 140-199 mg/dL. For individuals categorized as diabetes person, having HbA1c >6.5%, fasting blood glucose ≥126 mg/dL, and plasma glucose 2 hours after OGTT =200 mg/dL. Several risk factors for cardiovascular disease and diabetes are often found in one individual. These risk factors are hypertension, obesity, cholesterol levels, elevated triglyceride levels, low high-density lipoprotein (HDL), and impaired glucose metabolism.

One of the policies that can be applied to prevent Diabetes Mellitus is to use fiscal policy instruments. Then, related to the implementation of the fiscal policy instrument, there are at least several scenarios for the imposition of SSB Excise, including the following:

Based on the table above, based on the theory, there are at least three conditions that can be subject to SSB Excise collection, including at the Retail Sales Tax, Wholesale Tax, and Excise levels. For Retail Tax, the taxed product is flavored drinks, the point of delivery occurs at the end consumer, the collector is the retailer, and the object of the tax is the amount of sugar in SSB drinks, and the impact will increase the price of flavored drinks. For the imposition of taxes at the Wholesale Tax level, the taxed product is flavored drinks, the point of delivery occurs when sugar is added for drinking, the collector is the manufacturer of flavored drinks, and the object of the tax is the volume of sugar when added to the drink, and the impact will increase the price of flavored drinks. For the imposition of tax in the form of Excise, the taxed product is sugar, the point of delivery occurs at the time of manufacturing and importation, the collector is a sugar refiner and importer, and the object of the tax is the volume of refined or imported sugar, and the impact will increase the price of the beverage feeling.

Theoretically, the levied of a SSB Excise in the form of excise, is in line with the concept by Thuronyi, namely as a form of additional levy, on specific goods, and has different characteristics from the general Value Added Tax (VAT) (Thuronyi, 1996). In addition, Cnossen (2005) also adds that excise is levied on goods that have the following characteristics:

1) Selectivity in coverage. 2) Discrimination in intent. 3) Some form of quantitative measurement in determining the tax liabilities.

Selectivity in coverage means that excise is only imposed on certain types of goods, which are not only aimed at earning revenue, but also for special purposes, such as regulating the amount circulating in the community, which is considered to have negative externalities for the community, and for reasons of vertical justice.

Discrimination in intent, which means that excise duty has a discriminatory nature on goods that are considered immoral / unhealthy, excise is imposed on goods that are categorized as non-essential goods and are considered luxury goods and have negative externalities.

Quantitative Measurement, which means that excise is monitored for collection and its measurement is carried out specifically by the excise collecting authority. This includes physical control, such as control over tobacco excise or alcohol excise. In addition, the supervision carried out is not only physical supervision through the provision of excise stamps, but also supervision and inspection of the importers’ books (Rosdiana, 2013).

Based on those three conditions, the levy of a SSB Excise is at least expected to be able to control the
amount circulating in the community, control what happens, as well as the external condition of the excise collector authority, through supervision and inspection of books, so that it can then be used in health campaigns and the provision of public health facilities. However, at least there are some challenges in designing excise policies, including:

a) The process of setting tariffs is a bit complicated, due to the specificity of the type of goods being targeted. b) Goods that are categorized as low-price brands or high-price brands, can affect how excise rates are imposed.

However, experts agree that in determining this kind of thing, it is not based on the category of low-price brands or high-price brands, but rather on the amount of volume levels of substances with negative externalities being measured. Like how many milligrams of tar or nicotine it contains, or how many grams of sugar to give flavored drinks, etc.

Burdening consumers or producers related to external costs, is commonly known by a terminology that is Pigouvian prescription (Pigou in Crossen, 2005). This concept states that more efficient consumption and/or production can be achieved by using a tax system that imposes excise duty at a level of activity equal to the marginal cost generated by others. However, identifying and measuring marginal costs is often difficult because it depends on who does what, where, and under what circumstances. Therefore, in practice, external costs are usually estimated through averages, as well as through the pooling approach, adopted in assigning these costs, and pay uniformly excise, which calculated as the total of external costs divided by, for example, the number of packs of cigarettes or drinks consumed. This average-cost approach seems acceptable if damage is approximately proportional to cost. An important question regarding to the taxation of pollution (as well as of smoking, drinking, and gambling) is whether duty rates should exceed Pigouvian levels when governments need revenue, and non-distortionary lump-sum taxes are unavailable.

In connection to the Pigouvian prescription, which relate to earmarking tax process from SSB Tax, Earmarking some of the tax revenue towards programs that alleviate socioeconomic disparities may alleviate the possible negative effects related to this concern. Besides that, decisions concerning the allocation of tax revenue have also been of concern. Recent literature has suggested that earmarking tax revenue towards health programs may not always be beneficial in terms of increasing priority to health for national budget spending. If not health programs, tax revenue may be more effectively distributed towards infrastructural development such as water systems, especially in countries where SBs are more affordable than bottled water. Lastly, implementing an SB tax by itself will not be sufficient to significantly lower the prevalence of obesity and diet-related diseases (Du et al, 2018).

Obviously, the objectives specified above require appropriately designed instruments to achieve or approximate them. In the field of taxes on tobacco, alcohol, and petroleum, for instance, there is the question of whether specific rates (fixed amounts per quantity) or ad valorem rates (fixed percentages of trade price), or some combination of these rates, should be used. The choice between these two rates depends on whether the primary aim of tax policy is to discourage consumption or to raise revenue. Since the damage caused by smoking, drinking, or polluting is independent of price, correction of externalities favours specific over ad valorem taxation. Where the tax instrument should be specific, further choices may have to be made about the precise form of the instrument.

In designing public policies, according to Anderson (2003), there are at least 5 stages, are: Problem Identification & Agenda Setting, Policy Formulation, Policy Adoption, Policy Implementation, and Policy Evaluation. At the Problem Identification & Agenda Setting stage, the main target of this process is to identify and specify the problems that occur in society, which are the targets of public policy. However, what needs to be observed is that not all problems must be identified, but only public problems that will be included as the government's agenda setting that should receive attention. Furthermore, at the Policy Formulation stage, the public problems that have been identified are made using policy alternatives that if applicable. At this stage, policy makers can view or borrow similar policies, in other regions/countries. Furthermore, at the policy adoption stage, the policy alternatives that have been made previously are selected and then can be applied. At this stage, it will usually depend on a majority vote in parliament in deciding its policies. Furthermore, at the policy implementation stage, the policies that have been selected will be made laws and regulations. This policy will be implemented and administered in conjunction with other regulations, and will be elaborated between regulations, if there is a connection. Finally, is the Policy Evaluation stage, which sees and reviews how the policy can work, whether it has a good impact on the community, and whether there is anything that needs to be updated from the regulation.

Furthermore, it is also necessary to pay attention to the condition of cost-benefit analysis that occurs because of the implementation of this SSB Excise policy. Benefit is a benefit / benefits obtained / generated from a productive activity, such as development, rehabilitation, or expansion, so that greater results are obtained (Purba, 1997). The benefits received annually by an organizational entity can vary depending on the fixed budget and variable budget, so that there will be fixed benefits and variable benefits that will be obtained by the entity. Purba said that the Fixed Budget is a budget with the same data for each period during the budget period, while the Variable Budget is a budget with different data for each period during the budget period. Then, Fixed Benefit is mentioned as a benefit that has the same data for each period during
the technical life of the project, while Variable Benefit is mentioned as a benefit that has different data for each period during the project's technical life.

In addition, cost-benefit analysis must also pay attention to the overall economic condition, which is not only related to the interests of a few small groups of people, but also to the joint welfare of the people of a region (Mishan, 1976). In addition, talking about cost-benefit analysis, there are conditions of opportunity costs and social benefits that must be considered in the policy formulation process. In addition, the conditions of Pareto Improvement must also be considered, that changes that occur in a community should not harm the interested parties but must provide better conditions for the community. In addition, the spillover effect would arise if the policy applied is regressive, while the spillover effect will not arise if the policy is progressive.

A progressive policy will redistribute resources according to the portion of each class, so it is less likely to create overlapping conditions in society, while a regressive policy has a greater possibility of creating an overlapping effect, for example: carried out by NZIER, in New Zealand the costs associated with BMI are eliminating US$1.16 subsidies on Children TV Advertising and increasing costs by US$401 for physical activity education development programs. After 10 years, it is estimated that it will save US$55 for every dollar spent per month. Potential revenue that can be obtained reaches US $12.5 Million / Year.

Furthermore, in measuring cost-benefit analysis, there are at least several methods that can be used, including the Net Present Value (NPV), Return on Investment (ROI), Payback Period (PP), and Internal Rate of Return (IRR) methods. In this paper, the ROI method is used with the formula: ROI = (Total Benefits - Total Costs) / Total Costs (Setyawan, 2018). By using the method of calculating ROI, it is hoped that it can simplify the process of calculating the Cost Benefit Analysis that occurs, so that it can be seen the condition of the projection of a policy that will be carried out.

**DISCUSSION**

**SSB Excise Implementation Policies Around the World**

The SSB Excise policy is not a new policy implemented by any countries in the world. There are already examples from countries in the world that have implemented SSB Excise policies. The UK, for example, has implemented a SSB Excise policy with the following details: for drinks with a level of less than 5gr/100ml there is no tax (including fruit juices and milk-based drinks), drinks with a sugar content of 5-8gr/100ml 0.18 Euros (equivalent to IDR2,880), and drinks with sugar content >8gr/100ml 0.24 Euro (equivalent to IDR3,840) (Scarborough, 2019). The implementation of this SSB Excise policy has only been implemented 2 years after its promulgation. The goal is that companies can re-formulate their products to reduce the sugar content in their products. The effect is that Coca-Cola lowers 6.7gr/100ml from 10.6gr/100ml (Jones, 2016).

The SSB Excise policy should pay attention to the following conditions: Considering the level of public consumption that can use a stratified level of people's income & the level of product elasticity, the tax structure must be in line with the primary objectives of the policy itself, as well as the geographical conditions of a country (Popkin, 2021). For the condition of Price Elasticity of Demand (PED) for soft drinks in the UK, after the implementation of the SSB Excise policy in the UK, the average PED in the UK is 1.89 with a range in the interval of 1.20 – 2.80 (Zhang, 2020). As a result, after the implementation of the SSB Excise in the UK, there was a 33.8% decrease in sugar consumption, an increase in the price of 0.075 Euro/liter (equivalent to IDR 1,224), product size increased by 172ml for high sugar drinks, and 141ml for low sugar drinks (Scarborough, Ibid), as well as slightly lowering demand, but not dramatically changing public intentions in the UK, especially for the lower middle class community, because for the lower middle class the issue of the imposition of SSB Excise is becoming more sensitive, due to high consumption, , and it is estimated that the potential for SSB Excise revenues in the UK could reach 251 million pounds, which will be used to finance publicly-funded healthcare system spending, campaigns on obesity prevention, and invest in education (physical improvement of schools & healthier school meals) (Zhang, Ibid).

In addition, SSB Excise policies have also been implemented in several states in the United States. The states that have implemented SSB Excise policies includes (Alcott, 2019):

**Table 5. Table of SSB Tax Implementation at the US**

| Location     | Date Enacted   | Tax Rate (¢ per ounce) | Includes diet drinks? |
|--------------|----------------|------------------------|-----------------------|
| Albany, CA   | November 2016  | 1                      | No                    |
| Berkeley, CA | November 2016  | 1                      | No                    |
| Boulder, CO  | November 2016  | 2                      | No                    |
| Oddessa, CA  | November 2016  | 1                      | No                    |
| Philadelphia, PA | June 2016     | 1.5                    | Yes                   |
| San Francisco, CA | November 2016 | 1                      | No                    |
| Seattle, WA  | June 2017      | 1.75                   | No                    |
| Cook County, IL | November 2016 | 1                      | Yes                   |

Source: Alcott, 2019

Based on these data, information was obtained that the State of Berkeley was the state that implemented the SSB Excise policy for the first time, namely in November 2014, and the State of Seattle was the latest state to implement the SSB Excise policy, namely in June 2017. The highest tax rate was applied, in the state of Boulder, which is 2%, while for the states of Philadelphia and Cook County, a SSB Excise is also imposed on diet drinks. Based on the data from the United States National Health and Nutrition Examination Survey (US-NHANES) for the year of 2009-2016, in the US it is calculated that US adults consume an average of 154 Calories/Day from SSB...
drinks, which represents 6.9% of the actual total calories consumed every day. This condition will certainly lead to conditions such as excess weight, diabetes, heart disease, etc.

Furthermore, the researchers also divided the level of SSB drink consumption based on the income of individuals in the United States, found a downward trend from the low-income level of individuals to the income level of high-income individuals. This indicates that it is the individuals with low incomes who often consume SSB drinks more frequently.

In Southeast Asia, there is Philippines which has implemented a SSB Excise policy. In the Philippines, the level of sugar consumption in the Philippines in 2015 reached 21.4g/capita/day, with health costs related to obesity reaching 567 million US dollars (Onagan, 2019). Currently, the Philippines is the third country in ASEAN to implement a SSB Excise policy after Thailand and Brunei Darussalam. A SSB Excise policy was proposed by the Philippines Tax Reform for Acceleration and Inclusion (TRAIN) using tax rates of 6 Philippine Pesos (0.11 US Dollar/Liter), but the sugar industry successfully lobbied for higher tax rates on corn fructose syrup-based drinks. for 12 Philippine Pesos.

Even though there is a VAT of 12%, sales of sweetened drinks can be maintained through effective marketing programs and varied products. One month after the implementation of the policy, the price of sweetened drinks increased by 16 – 20% and sales at Sari-sari convenience stores decreased by 8.7%. Onagan stated that this policy must be supported by the government and stakeholders, sticking to peasy and simple policies.

Besides the Philippines, Thailand has also implemented a SSB Excise policy in 2017 (Phonsuk, 2021). Phonsuk stated the hypothesis that when applying SSB Excise rates of 11%, 20%, and 25%, the price elasticity that occurred was -1.30, and SSB consumption levels decreased by 14%, 26%, and 32%, but there was an increase in the price of beverage products. SSB by 20% - 25%, and has implications for reducing energy intake, body weight, and BMI of the community, rather than the application of the SSB tax rate of 11%. In addition, there is a change in the prevalence rate of obesity by 1.73%, 3.83%, and 4.91%.

In Thailand, there is a change in tax regulations that reduce the SSB Tax rate from 20% to 0% - 14%, which is imposed based on the type of drink. 0% is charged for non-concentrated drinks, 10% for juice and fruit-based drinks, and 14% for soda and other carbonated drinks. However, currently in Thailand, there is an additional tax based on the number of grams of sugar contained in SSB drinks, with a range of less than 6gr to as high as 18gr. For example, a carbonated drink with an amount of sugar 6gr per 100ml, will be subject to a 14% tax rate with no additional specific tax, while for the same type of product with an amount of sugar 10gr per 100ml, it will be subject to a 14% SSB tax rate and an additional 0, 30 Baht/Liter as specific tax. This additional tax will continue to increase after 2019 and every 2 years until 2023 will reach a maximum rate of 5 Baht/Liter for juice, soda and carbonated drinks and 44 Baht for other concentrated drinks.

Another study wrote by Rosyada (2017), there are several countries, with details below, have implemented SSB Excise policies, including:

1) Chile: Decrease in product formulation by 23.7% and decrease in calories consumed by 27.5%/capita/day.
2) Portugal: Lowering the formulation of flavored beverage products, and also lowering sales.
3) Saudi, Qatar, UAE: collect excise duty on SSB by 50-100%.
4) Bermuda: 75% for sugar import tax.
5) Mexico: 1 peso/L (9% Product Price/HP), down 12%/capita/year (equivalent to IDR691/L).
6) France: 7.16-euro cent/L (6% HP) equivalent to IDR1.169/L.
7) Finland: 0.22 euro/L for 0.5% sugar (equivalent to IDR3.592/L) & 0.11 euro/L for other non-alcoholic beverages (equivalent to IDR1.796/L).
8) South Africa: 2.29 cents rand/gr (equivalent to IDR 2.203/gr).

For more detail, the following are countries that have implemented SSB Excise policies (Alcott, Ibid).

Based on these data, in Europe the first country to impose a SSB Excise policy was Finland (1940), and the latest countries to implement it were Estonia, Ireland, and the United Kingdom (2018). In the Western Pacific, the Samoa Islands were the first country to implement a SSB Excise policy (1984), and the Philippines was the latest country to implement (2018). In Africa, Mauritius is the first country to implement (2013), and Morocco is the latest country to implement (2019). And in America, Mexico, and Chile (2014) were the first countries to implement it, while Colombia (2019) was the newest country to implement it.

Based on the table below, countries in Europe, Western Pacific, Africa, Eastern Mediterranean, and Southeast Asia, and American are countries that have imposed SSB Excise policies.

Table 6. Sugar Sweetened Beverages Tax Implementation around The World

| Europe          | Western Pacific | Africa, Eastern Mediterranean, and Southeast Asia | Americas                  |
|-----------------|-----------------|-----------------------------------------------|---------------------------|
| Estonia (2018)  | Philippines (2018) | Morocco (2019) | Columbia (2019) |
| Ireland (2018)  | Brazil (2017)   | South Africa (2018) | Bermuda (2018) |
| United Kingdom (2015) | Vietnam (2015) | Botswana (2017) | Barbados (2017) |
| Portugal (2017)| Korea (2017)    | Italy (2017)      | Dominica (2017) |
| Belgium (2016)  | Croatia (2013)  | Slovakia (2017) | Chile (2017) |
| France (2012)   | Germany (2013)  | Malta (2017)     | Mexico (2014)  |
| Hungary (2011)  | Netherlands (2017) | Sri Lanka (2017) | Mexico (2017)  |
| Latvia (2009)   | Norway (2009)   | South Africa (2017) | Mexico (2017)  |
| Norway (1989)   | Poland (2001)   | Thailand (2017) | Mexico (2017)  |
| Finland (1940)  | Norway (2002)   | United Arab Emirates (2017) | St. Helena (2014) |

Source: Alcott, 2019
But what we have to be notes are, in determining the SSB Tax Policy, based on the previous research from Erin (2020), in Mexico, there are some factors that relates to the SSB policy implementation, such as getting the support from the tax supporters, such as NGO’s, academics, and legislators to bring the problem and policy streams together and put on legislative agenda setting, design the strategies separately from civil society supporters with the aim to prevent from the tax opponents to interfere, and the financial support from the institution, such as in this Mexico conditions is from Bloomberg Philanthropies. Erin, for additional information, mention the limitation of the research is maybe it is only fit in Mexico, because it is using single case study. Then there maybe a bias in the selection of the interviewee. So, there are many possibilities this research implied in another countries, such as the strategies can be adapted with three streams model. Then, to develop the SSB policy is quite hard enough because it involves high level organization, cooperation, strategic planning, and effort. The funding action is quite important too, because in this case, this research get a funding from Bloomberg Philanthropies.

From another research, we also can be known that there are 3 determinants factors that relates to the SSB Policy Implementation, such as Content, Context, and Process, with some related Actors (Buse in Hagenaars, 2021). The Content issue are about the targeted sweetened beverages, determining the policy goals, earmarked the revenue for specific matters, and tax rate design. The Context are about the political action that needed to be taken, fiscal need rather than the problem that arise, the SSB policy that align with existing other tax policies, and public sentiment regarding to the industry’s lobbying. The Process issue are about agenda setting that will arise public sentiment, policy formulation that relates to the tax proposal from the expertise, and advocacy coalitions to goal the policy. Besides that, the Actors relates to Soda Industry, Health NGO’s, Ministry of Finance, Advocacy Coalitions, and Public.

In Netherlands, suits to the research held by Djojosoeparto et al (2020), the levied of SSB Tax would cause a regressive effect on public consumptions, especially in lower income person, would spend larger portions in consumptions, so if the SSB Tax will cause the prices and the person cannot make another alternative, that would be a potential problem. The increases prices of SSB will cause the regressive effect, that the consumers will buy food or drink that they don’t need. But other interviewees said that the increase of SSB price will stimulating people to buy fewer sugar drink, would contribute to decreased of socioeconomic inequalities in health. So, at the end, from this research it can be known that the SSB policies could make greater effect on health benefits among lower socioeconomic groups rather than higher socioeconomic groups.

In Brazil, based on the research did by Claro (2011), stated that the researcher agrees with Brownell et all, the regressive effect can be offset with subsidizing the process of healthy food with the tax revenues, and could increase freedom to choose the consumptions for public. Claro mentioned the SSB Tax basically is for reduction of people consumption of sugar, and substitute it to calorie free beverages, such as water and higher nutritional value, such as milk. Eventough it may promote healthier behaviours, but the change may not be statistically significant in long term (Al-Alawy, 2021). The reasons are because this might extend the substitution effect, promotional offers, introduction of new products into the market. Thus, decision-makers may need to account for market responses during policymaking because these responses may hinder the desired change or dilute the intended impact of policy.

Related to the Industry responses in connection with the SSB Tax Implementation, Du et al (2018), stated that of course the industry will oppose the SSB Tax Implementation, while they successfully created “Obesogenic Food Environments” through the massive marketing advertisement, they also doubt-over and distort the establishment of scientific study between SSB & Obesity. Besides that, they also provide their owned study to support their arguments, by blaming consumers physical inactivity rather than their products. Besides that, they create a nonprofit organization named Global Energy Balance Network and donated more than millions of dollars to establish fitness programs in more than 100 schools in US, and donated millions of dollars too to Children’s Hospital of Philadelphia. Then, the corporate, such as Coca Cola, Pepsi, and ABA, spent millions of dollars too to lobby to pro-tax side, with the result the company win the battle. In this term, the support from public and government are crucial for successfull implementation of SSB Tax. Eventhough in South Africa had experience in multiple delays from 2016 to 2018, it is because industry pushback.

Another research from Acton et al (2022), revealed that based on the respondent stated that in Mexico and UK, the SSB cost perceived ‘a little more’ rather than ‘a lot more’. Besides that, in UK, the person who perceived SSB Tax in healthy consumptions is bigger in older group rather in younger group, male respondent is bigger that the female in determining SSB Tax as a healthy consumption, and higher education group more perceived rather than believed one. Besides that, in this research revealed that in Mexico, younger Mexican more aware than those aged 30-64, but on the other hand in UK, the adult person more aware than the younger one. In both countries, the female more aware than the male.

In Indonesia, previously there were authors who wrote about the analysis of the feasibility of imposing excise on sweetened drinks, and it was concluded that if the SSB Excise policy was implemented in Indonesia, the impacts would include:

1) Resistance from the Sugar Sweetened Beverages (SSB) industry because it has been subject to VAT. 2) Product elasticity, there must be a substitute product.
3) Difficulties in the process of supervising excise stamps, due to using barcodes. 4) Difficulty in setting tariffs on each type of SSB (Rosyada, 2017).

The Urgency SSB Excise Implementation Policy in Indonesia

Considering world conditions nowadays, as quoted from the International Diabetes Federation (IDF) in 2019, that diabetes is one of the 10 deadliest diseases in the world with an increase rate of which is estimated to reach 51% in 2045, then in the Western Pacific, where Indonesia being a part of it, is expected to increase by 31% over the same time span. In addition, the condition of Indonesia which ranks 7th in 2019 as a country with the highest level of diabetes sufferers in the world with the number of sufferers reaching 10.7 million people and is expected to increase to 16.6 million people in 2045. In addition, Indonesia also ranks third in Southeast Asia with consumption of sweetened drinks reaching 20.23 Liters/person/year, and resulting in health budget costs reaching Rp6.1 trillion in 2018, and relatively high general risk factors for Non-Communicable Diseases (NCDs) reaching 33.5% by not doing physical activity, 95% by not consuming fruit and vegetables, and 33.8% of people over the age of 15 who are heavy smokers, and the element of SSB Excise has not been included in the Excise Law in force in Indonesia, is one of the factors driving the increasing urgency of implementing SSB Excise policies to be implemented in Indonesia.

The implementation of the SSB Excise policy is expected to be one way to suppress public consumption patterns, especially consumption patterns for sugar, to reduce rates of mortality and morbidity in Indonesia. Indicators of a normal society and do not have diabetes that must be achieved by Indonesian people are to achieve HbA1c levels of ≤5.7%, fasting blood glucose of 70-99 mg/dL, and Plasma Glucose 2 hours after OGTT of 70-139 mg/dL. By considering the conditions as mentioned above, the government should and should include the issue of SSB Excise as a Problem Identification & Agenda Setting owned by the government.

Regarding the Policy Formulation process for collecting SSB Excise, it is more feasible to choose a taxation scheme in the form of Excise rather than Wholesale Tax or Retail Sales Tax. This is because the imposition of a SSB Excise in the form of excise is expected not to significantly disrupt the price in the distribution process of goods, because it has been imposed at the beginning, during the importation or refining process. This is different from the implementation process at the retail sales tax stage, which will reduce the level of simplicity because it is imposed on the final consumer and at the retailer level, as well as the Wholesale Tax level which will disrupt the product price level, because it will co-exist with the collection of Value Added Tax, the imposition of SSB Excise. This excise tax is considered more feasible to apply. But what needs to be considered is the level of Basic Tax Imposition and Tax Rates which must be evaluated periodically. This is because the basis for imposition of taxes will be related to the level of consumption and national sugar production, as well as the determination of the tariff to be imposed must be decided well through the national political process.

The imposition of a SSB Excise in the form of Excise, is directly in accordance with the characteristics of excise, as conveyed by Cnossen, among which is related to selectivity in coverage conditions, the imposition of a SSB Excise must pay attention to the amount of sugar contained in flavored drinks. Thus, the imposition of a SSB Excise should be imposed using a certain threshold scheme, for example, if you look at the UK, the imposition of a SSB Excise is imposed with a scheme for drinks with a level of less than 5gr/100ml not subject to tax, drinks with a sugar content of 5-8gr/100ml 0.18 Euro, and drinks with sugar content >8gr/100ml 0.24 Euro. In addition, if you look at Indonesia's neighboring countries, such as Thailand, the imposition of taxes under this scheme has also been carried out, namely with details of 0% being charged for non-concentrated drinks, 10% for juice and fruit-based drinks, and 14% for soda and other carbonated drinks.

In addition, the characteristics of Discrimination in Intent can also be applied with a threshold scheme like this, so drinks with low sugar content are not subject to tax, while drinks with medium and high sugar content will be subject to tiered taxes according to their levels. So that tariff discrimination using a tiered threshold is quite feasible to be applied. For the characteristics of Quantitative Measurement, it is more feasible to apply a SSB Excise with excise form, with the consideration that it will not interfere with the price significantly in the process of distributing goods, because it has been imposed at the beginning, during the importation or refining process.

In theory, the imposition of a SSB Excise in the form of excise is in accordance with what is regulated by the existing laws and regulations in Indonesia through Law no. 39 of 2007 concerning Excise, namely the imposition of a SSB Excise in accordance with certain characteristics referred to in the law, including: sugar is an item whose consumption needs to be controlled and its circulation needs to be

Figure 5. Sugar Consumption in Indonesia FY 2017-2021

Source: BPS in lokadata.com
monitored, excessive use of sugar can have a negative impact on society or the environment, and the excessive use of sugar requires the imposition of state levies for justice and balance.

Based on data obtained from the Indonesian Central Statistics Agency, as reported by lokadata (2021), the following information was obtained:

Based on the figure above, there was a consumption figure of 5.1 million tons in 2018 and 2019, then there was a consumption of 5.2 million tons of sugar consumption in 2020, which caused an increase in consumption levels reaching 2% (YoY). With the condition that the price of granulated sugar as of November 2021 reaches Rp. 12,500/kg, the Tax Base that can be obtained is a total of Rp. 193,750T with an average value of Rp. 64,58T. Then, if you look at the UK and Thailand which apply a SSB Excise rate of 5-10%, and Indonesia can apply an ad-valorem rate of 5%, then the potential benefit that can be obtained is Rp9.68T with an average of Rp3.22T. In detail, the simulation calculations can be seen in Table 7 above.

Furthermore, if you look at this revenue projection, then it is compared with the structure of Excise revenue as of December 2020:

Table 7. Simulation of Potential Tax Revenue on SSB Excise

| Year | Sugar Level Consumption in Indonesia FY (In Kg) | Sugar Price (kg) | Tax Base | Rate | Potential Tax Revenue |
|------|-----------------------------------------------|-----------------|---------|------|----------------------|
| 2018 | 5,100,000,000                                 | 12,500          | 63,750,000,000,000 | 5%   | 3,187,500,000,000    |
| 2019 | 5,200,000,000                                 | 12,500          | 65,000,000,000,000 | 5%   | 3,250,000,000,000    |
| 2020 | 5,200,000,000                                 | 12,500          | 65,000,000,000,000 | 5%   | 3,250,000,000,000    |
| Total| 15,500,000,000                                | 193,750,000,000 | 9,687,500,000,000  |
| Average| 5,166,666,667                                  | 64,583,333,333,333 | 3,229,166,666,667 |

Source: BPS in Lokadata, 2021 (remake by author)

Based on the table above, related to the Details of Costs for SSB Excise Implementation in Indonesia in the 1st year (2018) it reached Rp98 billion, the 2nd year (2019) reached Rp109 billion, and the 3rd year (2020) reached Rp120 billion. So, by calculating the Return on Investment that occurs, the projected ROI that will occur can be seen in the table below:

Table 8. Posture of Excise period of December 2020

| Type of Revenue | 2019 (In Trillion Rupiah) | 2020 (In Trillion Rupiah) |
|----------------|--------------------------|--------------------------|
| Excite         |                          |                          |
| Tobacco        | 164.87                   | 170.24                   |
| Dist Alcohol   | 0.12                     | 0.24                     |
| MMEA           | 7.34                     | 5.76                     |
| Admin Sanction of Excise | 0.07  | 0.06                     |
| Other Excise   | 0.02                     | 0.04                     |
| Plastic        |                          |                          |
| Total          | 172.42                   | 175.31                   |

Source: Ministry of Industry Republic of Indonesia (remake by author)

This potential excise revenue from sugar will reach 2% of the total excise revenue in Indonesia and will be the 2nd or 3rd largest contribution in the excise revenue structure, under the imposition of tobacco excise, which is still the prima donna in Indonesia. In addition, related to costs that will arise in connection with the SSB Excise implementation process, as quoted from Setyawan (2018):

Table 9. The Detailed Cost Projection relates to SSB Excise Implementation FY 2018 - 2020

| Detailed of Cost in Sugar Tax Implementation | 2018 (In Million Rupiah) | 2019 (In Million Rupiah) | 2020 (In Million Rupiah) |
|---------------------------------------------|--------------------------|--------------------------|--------------------------|
| Drafting Report                             | 400                      | 490                      | 500                      |
| Drafting Regulations                        | 100                      | 125                      | 150                      |
| Making Excise System                        | 97,620                   | 108,740                  | 120,909                  |
| (Application, Socialization, etc)           |                          |                          |                          |
| Total                                       | 98,420                   | 109,311                  | 120,959                  |

Sources: Setyawan, 2018

Based on the table above, related to the Details of Costs for SSB Excise Implementation in Indonesia in the 1st year (2018) it reached Rp98 billion, the 2nd year (2019) reached Rp109 billion, and the 3rd year (2020) reached Rp120 billion. So, by calculating the Return on Investment that occurs, the projected ROI that will occur can be seen in the table below:

Based on the table above, it can be seen through the calculation of ROI, it can be concluded that the ROI that will be created will reach 28.47%. This shows that the imposition of excise on sugar will provide state revenues that are higher than the costs incurred. In Indonesia, the levy of excise regulated in Law no. 39 of 2007 concerning Excise, but the SSB Excise still not included in those regulation, but there is still space to accommodate the levy of SSB Excise in Indonesia with new excisable good with regulated in Government Regulation, which stipulated in article 4 paragraph 2, that the addition or subtraction of the types of excisable goods is regulated further by Government Regulation.

Furthermore, based those regulation, in article 7 paragraph (1), stipulates that excise duty on excisable goods made in Indonesia is paid at the time of releasing excisable goods from the factory or storage place, while payment of excise on imported goods is regulated in article 7 paragraph (2): Excise duty on imported excisable goods is paid at the time the excisable goods are imported for use. Regarding the payment method for excise duty, it is regulated in Article 7 paragraph (3), which is carried out through: a. payment; b. sticking of excise taxes; or c. affixing other signs of payment of excise duty.

From another references, we also can be known for the example of products that can be levied the SSB Excise from Catalonia Fiscal Law article 72, defined the Taxable of SSB as those beverages that include caloric sweeteners such as sugar, honey, fructose, sucrose, syrups, or nectar (corn, maple, agave, and rice), with the list of detail taxable products: (1) Soft drinks or colas without alcohol, with flavors with or without gas, commercially prepared that are sold in bottles or cans as well as those on draught; (2) beverages of nectar and juices from fruits; (3) sport drinks designed for athletes to rehydrate and to rest the electrolytes, sugar and other nutrients; (4) tea and coffee beverages; (5) energetic drinks (i.e. carbonated beverages that contain large amounts of caffeine, sugar and other ingredients such as vitamins, amino acids and herbal stimulants); (6) sweetened milk, milkshakes and combinations of milk and sugared fruit juice.
HAMBALI, THE URGENCY OF SUGAR SWEETENED BEVERAGES EXCISE POLICY

The urgency of SSB excise policy in Indonesia is driven by the need to address the high consumption of sweetened drinks. This is evidenced by the fact that Indonesia has one of the highest consumption rates of sweetened drinks in the world, with over 20.23 liters per person per year in 2019. The health implications of excessive sugar consumption are severe, with a growing number of people developing diabetes, obesity, and other health issues.

The Indonesian government has implemented a SSB excise policy, which aims to reduce sugar consumption and improve public health. This policy has been modeled from Thailand, which applies a specific tax on sweetened drinks based on the sugar content. The tax is imposed at the beginning, during the importation or refining process, and then at the point of sale. The mechanism for paying the excise duty is based on the weight of the SSB product, rather than implied multi-tiers tariff rate.

The SSB excise policy has contributed to revenue generation, with potential benefits estimated at over Rp. 64.58T. This shows that the imposition of excise on sugar has been beneficial for national revenue. However, there are potential challenges, such as the need for a detailed research method to fully describe the policy and its impacts. The excise policy should be applied immediately because there is a trend to increase the number of people with diabetes in Indonesia, which shows a figure of 10.7 million people in 2019, as well as the high consumption of sweetened drinks for the people of Indonesia, which reaches 20.23 Liters/person/year, but Indonesia government must be awarded which is not describe yet using a full detail research method.

CONCLUSION

Based on the data and analysis mentioned above, there are conclusions, including SSB Excise policies have been implemented in many countries in the world. The aim is mostly to control the pattern of sugar consumption in the people of a country, to overcome the health costs that arise from diseases caused by excessive sugar consumption, and to provide public facilities that can help reduce the effects of sugar consumption. The SSB Excise policy has different forms from one country to another, but two forms of implementation that can be imitated by Indonesia are the pattern of applying the SSB Excise from the UK, by applying a tiered threshold for the imposition of SSB Excise based on the sugar content in sweetened drinks. In addition, there is also Thailand which applies a policy of adding a specific tax on types of drinks that contain excess sugar. The Indonesian government should implement a SSB Excise policy in the form of excise on sugar. This is because the imposition of a SSB Excise in the form of excise is expected not to significantly disrupt the price in the distribution process of goods, because it has been imposed at the beginning, during the importation or refining process, and can be implementing excise policy with multi-tiers tariff rate. This SSB Excise Policy should be applied immediately because there is a tendency to increase the number of people with diabetes in Indonesia, which shows a figure of 10.7 million people in 2019, as well as the high consumption of sweetened drinks for the people of Indonesia, which reaches 20.23 Liters/person/year, but Indonesia government must be awarded which is not describe yet using a full detail research method.

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