SCHOOL OF ACCOUNTANCY

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A Research Report Submitted to the Faculty of Commerce, Law and Management in Partial Fulfilment of the Requirements for the Degree of Master of Commerce (Specialising in Taxation)

A Study of the Behavioural Impact of the Imposition of a Tax

NDIVHENI DAVID MAHODE

DECLARATION

I declare that this research report is my own unaided work. It is submitted in partial fulfilment of the requirements for the degree of Master of Commerce (specialising in Taxation) at the University of Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination at any other institution.

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Ndivheni David Mahode

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ABSTRACT

Obesity and overweight caused by overconsumption of sugar-sweetened beverages ('SSBs') are a problem in South Africa, as in most countries. It was for this reason that the Minister of Finance announced in the February 2016 Budget a decision to introduce a tax on SSBs with effect from 1 April 2017 to help reduce excessive sugar intake and tackle non-communicable diseases. Previously, South Africa had introduced similar legislation but abolished it in April 2002 after a nine-year period (BDO, 2012.) In order to determine the impact of the sugar tax in South Africa, the sugar tax was compared to similar taxes implemented in other tax jurisdictions, namely, the United States of America, the United Kingdom, Mexico and Denmark, and also to other similar taxes levied in South Africa. The question which the research addressed is whether a sugar tax could be used as a tool to decrease the rising rate of obesity in South Africa and therefore to improve the general health of South Africans (effective tax). The tax on SSBs may have its shortcomings but, depending upon the administrative and support structures put in place to deal with it, it will be an effective tax. In other words, the introduction of a sugar tax should reduce overweight and obesity.

Key words:

Fat tax, heart diseases, obesity, overweight, sugar sweetened beverages, sugar tax, type 2 diabetes, South Africa

CHAPTER 1: INTRODUCTION

1.1 Background and motivation

It is apparent from the National Treasury Policy Paper on the taxation of SSBs ('Policy Paper'), issued on 8 July 2016, that non-communicable diseases (NCDs) are the leading causes of mortality globally, resulting in more deaths than all other causes combined, and that the world's low and middle-income populations are the most affected. Furthermore, the Policy Paper indicated that these diseases cause enormous human loss, impose heavy costs on public health systems, and reduce overall productivity through the premature death and/or disability of people during their productive years. According to the National Department of Health (2013), the four main types of NCDs are cardiovascular diseases (such as heart attacks and stroke), cancers, chronic respiratory diseases (like chronic obstructed pulmonary disease and asthma), and type 2 diabetes. These diseases are related to the interaction of various genetic, environmental, and especially behavioural, risk factors, including: tobacco use, harmful alcohol use, physical inactivity, and eating unhealthy diets (World Medical Association, 2016).

The Policy Paper states that obesity is a global epidemic and a major risk factor for the growing burden of NCDs, including heart disease, diabetes, strokes, and some cancers. Globally, obesity and being overweight are responsible for 5% of deaths, whilst high blood pressure is responsible for 13%, tobacco use is responsible for 9%, raised blood glucose is responsible for 6%, physical inactivity is responsible for 6%, and alcohol is responsible for 3.8% (National Department of Health, 2013.) Obesity and being overweight are measured using the Body Mass Index (BMI) (i.e. weight (kg)/height (m^2)) (The Policy Paper).

The Centers for Disease Control and Prevention in the United States of America defines being overweight as having a BMI level of 25 or more, and obesity as having a BMI level of 30 or more. The Policy Paper stated that, in South Africa, obesity has grown in the last 30 years, and the country's population is now considered the most obese in sub-Saharan Africa; over half of the country's adults are now overweight and obese, with 42% of women and 13% of men classified as obese.

Being overweight and obesity occur when a person consumes more energy (measured in calories) than is spent (World Health Organisation, 2012b.) According to the Policy Paper, diets which are high in fat and sugar are "energy-dense", and contribute to obesity and overweightness. Also, increased consumption of free sugars, particularly in the form of SSBs, is associated with weight gain in both children and adults. Although sugars are found naturally in many foods, including fruit and milk, the addition of sugars to food products adds to the total energy content of the product. The Policy Paper states that SSBs contain added sugars such as sucrose or high fructose corn syrup, and that a 330ml or 12 oz portion of a sugar-sweetened

carbonated soft drink typically contains some 35g (almost nine teaspoons) of sugar, which provides approximately 140 kcal of energy, generally with little other nutritional value.

The Policy Paper indicated that consumption of sugary foods and drinks is the primary cause of tooth decay; dental extraction is the major reason for the use of general anaesthesia in young children, particularly affecting children from deprived households. Watt, R. and Rouxel P. (2012) state that, at an extreme level, sugar consumption can cause malnutrition in both children and adults and significantly reduce quality of life because of pain and discomfort. The report on the National Children's Oral Health Survey indicates that the mean national caries prevalence in 4 to 5-year-olds is 50,6%, and in 6-year-olds is 60,3%; the burden of untreated dental caries in South Africa, according to the survey, was reported to be 46.6% in the 4 to 5-year-olds and 55,1% in the 6-year-olds.

The World Health Organisation (2015) states that the increasing intake of free sugars, particularly in the form of sugar-sweetened beverages, increases overall energy intake and may reduce the intake of foods containing more nutritionally adequate calories, leading to an unhealthy diet, weight gain and increased risk of NCDs. The 2013 WHO's Global Action Plan encourages Member States to consider the introduction of such as taxes and subsidies as are appropriate within the national context, so that they:

- create incentives to encourage behaviours associated with improved health outcomes,
- improve the affordability and encourage the consumption of healthier food products, and
- discourage the consumption of less-healthy options.

The World Health Organisation's Guideline on Sugar Intake suggests that adults and children restrict sugar intake to less than 10% of total energy intake per day (i.e. 50 grammes of sugar, equivalent to around 12,5 teaspoons), and recommends a further reduction to below 5% of total energy intake per day for additional health benefits (i.e. 25 grammes of sugar, equivalent to around 6 teaspoons). In this context, countries such as Denmark, Finland, France, Hungary, Ireland, Mexico, Mauritius and Norway have charged taxes on SSBs, while the United Kingdom, Thailand, Australia and South Africa have recently announced their intention to introduce such taxes.

Baloyi (2016) makes the following comment:

'These taxes are structured differently in each country and have reduced SSB consumption and increased health outcomes at various levels. Some taxes are based on the sugar content of products with a flat tax rate across the different products. Other structures include a weighting to the different types of sugars, while others use thresholds. Some of the challenges that have faced the imposition of a tax on sugar products include administrative considerations, job

losses, product substitution by consumers and tax evasion because of classification anomalies. Although taxes on consumption have been contested by various stakeholders, taxes are likely to have a role to play in mitigating the effects that are related to NCDs. An increase in the prices of SSBs due to taxes is likely to encourage consumers to reduce their demand, which may lead to less production or changes in the formulation of the product'.

An analysis was made of other sin taxes implemented by the South African Revenue Service ('SARS') to attempt to gauge the effectiveness of the tax on obesity. Sugar tax has the same characteristics as a sin tax (excise duties and levies) because the tax has been designed to deter consumers from the consumption of a vice product. The idea of sugar tax involves levying a tax on SSBs deemed to be possibly harmful, while a sin tax is levied on products that the government wants the population to consume less, by making them more expensive (Storom, 2012: 4.)

According to SARS, the primary function of these duties and levies is to ensure a constant stream of revenue for South Africa, with the secondary function of discouraging the consumption of certain harmful products, i.e. harmful to human health or to the environment.

The effects of the implementation of sin taxes will need to be taken into account in the deliberations surrounding the possible implementation of sugar tax in South Africa, in that the intention of the sugar tax is similar to that of a sin tax.

Although a number of countries have implemented fiscal measures such as SSB taxes, some researchers argue that most of the current nutritional policies relying only on information strategies for the consumers have had a weak impact on consumer choices (Requillant, V and Bonnet, C, 2015.) The Policy Paper provides that the proposed fiscal intervention in the form of a tax on SSBs is just one tool in South Africa's strategy of a comprehensive package of measures. Other strategies include the following:

- Creation of an institutional framework to support inter-sectoral engagement;
- Creation of an enabling environment that supports the availability and accessibility of healthy food choices in various settings;
- Increasing the percentage of the population engaging in physical activity;
- Supporting obesity prevention in early childhood (in-utero to 12 years);
- Communicating with, educating and mobilising communities; and
- Establishing a surveillance system, strengthening monitoring and evaluation, and carrying out research.

A comparison was also made between the South African sugar tax and that of other international jurisdictions, specifically Mexico, Denmark, the United States and the United Kingdom.

1.2 Basis for country selection

The United States of America, the United Kingdom, Mexico and Denmark were selected in order to do a comparative study of countries that have already, or are in the process of, implementing a sugar tax in order to reduce the obesity levels in their countries. These countries were also selected for inclusion in the research report for the following reasons (Seedat: 2016: 7):

- Sugar tax is considered to be most effective in countries with a high prevalence of obesity and people being overweight, and a high soft drink consumption by the general population. The United States of America, United Kingdom, Mexico and South Africa have amongst the highest rates of obesity and people being overweight in the world. This is evident from the following: In the United States 40,4% of women are considered obese, with Mexico at 37,5% and the United Kingdom at 26,8%. This is comparable with the 39,2% of South African women who are considered obese. The overconsumption of soft drinks is further noted in the United States of America, the United Kingdom, Mexico and South Africa. In the United States, their citizens consume approximately 203 000 calories per day that is attributable to soft drinks. An average of 120 000 calories attributable to soft drinks are consumed daily in Mexico. Women consume 63 grammes of sugar per day in the United Kingdom; men consume 22 grammes of sugar daily. This is only in respect of sugar-sweetened beverages. In South Africa, people consume approximately 184 millilitres of sugar-sweetened beverages per day. On average, 35 grammes of sugar are contained in a 330ml can of Coke®. According to the World Health Organisation the normal daily intake of sugar must be 25 grammes.
- The per capita consumption of sugar-sweetened soft drinks in South Africa has increased from 39 litres in 2011 to 48 litres in 2016, and is expected to continue growing.
- South Africa should therefore study countries with similar obesity and soft drink consumption trends to identify the most effective methods to curb obesity, albeit if this is by a sugar tax.

- Denmark introduced a tax on soft drinks during the 1930s, but it was abolished in 2014. The reasons that this long-standing tax law was abolished are considered to be relevant to the research and will be considered in determining the efficacy of sugar tax in curbing obesity in citizens. Denmark is therefore included in the research report, even though the country does not have a high obesity rate or a high rate of soft drink consumption.

1.3 Research problem

1.3.1 The statement of the problem

The aim of this study is to determine whether or not the introduction of a sugar tax on SSBs in South Africa will be able to reduce obesity.

1.3.2 The Sub-Problems

The following three sub-problems arise, namely:

Sub-problem 1

Does sugar cause obesity?

Sub-problem 2

Was the implementation of a sugar tax in the United States, the United Kingdom and Australia able to curb obesity in their citizens?

Sub-problem 3

Was the introduction of a sin tax on alcohol and tobacco able to influence the consumption of alcohol and tobacco?

Sub-problem 4

Will a sugar tax be able to manipulate the consumption of sugar-sweetened beverages in South Africa, resulting in the curbing of obesity?

1.4 Research methodology

The research methodology employed will consist of a literature review, including books, court decisions (case law), electronic databases, electronic resources (internet), journal articles, and

magazine articles, as well as the relevant legislation from South Africa, the United States of America, the United Kingdom, Mexico and Denmark.

1.5 Structure of the report

Chapter 1 introduces the research and consists of the statement of the research problem and the research methodology as well as an overview of the organisation of the report.

Chapter 2 discusses obesity around the world and in South Africa; the causes of obesity and being overweight; and the increased obesity in children and children being overweight in South Africa and around the world.

Chapter 3 provides a detailed literature review on sin taxes in South Africa. This is discussed in order to determine whether or not sin taxes were able to manipulate the consumption of products attracting the sin tax. The arguments in favour of and against the sin taxes are also discussed in this chapter.

Chapter 4 is an overview of the countries which have considered, or have already introduced, a sugar tax, as well as the arguments in favour of and against the introduction of a sugar tax in each country selected for the study.

Chapter 5 discusses sugar taxation in South Africa, the history of sugar taxation in South Africa as well as the opinions in favour of and against the implementation of sugar taxation in order to reduce obesity and people being overweight in South Africa.

Chapter 6 summarises the research findings in relation to the research problem, provides recommendations relating to sugar taxation, and proposes areas requiring further research.

CHAPTER 2: OBESITY

2.1 Introduction

This chapter discusses the concept of obesity, with a detailed investigation of the causes of this condition together with the effects the condition can have on persons suffering from obesity. As the purpose of the study is to determine whether or not the implementation of a sugar tax on SSBs in South Africa will be able to reduce obesity, the literature review presented below seeks to determine the association between sugar-sweetened drinks and obesity (the link between the consumption of sugar-sweetened drinks and obesity) as well as the current situation in this regard in South Africa. The association is important for an understanding as to whether tax on SSBs will have an effect on obesity and people being overweight in South Africa.

2.2 What is obesity?

Being overweight or obese occurs when a person consumes more energy (measured in calories) than his body can expend (World Health Organisation, 2012b.)

The prevalence of obesity and being ovberweight is measured using the Body Mass Index (BMI) (i.e. weight (kg)/ height (m^2)); a BMI level of 25 or more is classified as overweight, and 30 or more is classified as obese (Centers for Disease Control and Prevention, 2011(b))

Storom (2012, 12) states that there are numerous issues surrounding the seriousness of obesity; questions are raised as to whether obesity is a medical disease or a lifestyle chosen by those who are obese. He further states that lifestyle choices are an important factor in influencing the weight of a person and links an individual person's lifestyle choices to obesity. Hence, obesity is a condition brought about by lifestyle choices and not a disease.

Obesity is, however, a chronic medical condition and a disease, and fits any reasonable definition of disease (Kahan, 2012.) Kahan (2012) defines a disease as an impairment of the body or one of its parts resulting from various causes, such as infection, genetic defect, or environmental stress, and characterized by an identifiable group of signs or symptoms. According to Kahan (2012), obesity is no different from other chronic diseases and is similar to hypertension ("high blood pressure") and Type 2 diabetes because of the following:

- Each involves malfunctions of intricately-regulated systems: blood pressure in the case of hypertension, blood sugar in the case of diabetes, and energy balance and body weight in the case of obesity.
- Each has significant genetic predispositions and can ultimately result in serious health consequences.
- Each is associated with unhealthy diets and physical inactivity. This is essential to appreciate. The eating and inactivity patterns that lead to excess weight-gain in susceptible people are the same ones that lead to chronic diseases in others — even in 'skinny' people.

In conclusion, obesity is a disease and a major risk factor linked to the growing burden of non-communicable diseases (NCDs), including heart diseases, type 2 diabetes and some forms of cancers, as per the National Treasury Policy Paper on the taxation of SSBs (Policy Paper), released on 8 July 2016. According to this Policy Paper, NCDs are the leading causes of mortality globally, resulting in more deaths than all other causes combined, and that the world's low and middle-income populations are the most affected.

2.3 Increased Prevalence

Storom (2012,1) points out that obesity is fast becoming a significant issue of concern for governments worldwide, with the United Nations citing obesity as the fifth leading

cause of death in the world in the year. He states further that the World Health Organisation indicated that in the year 2008 an estimated 1.5 billion adults above the age of 20 were overweight, and of these overweight adults, over 200 million men and nearly 300 million women were obese. The author concludes that the increased prevalence of obesity is not only confined to adults; the World Health Organisation identified childhood obesity as increasingly prevalent, with an estimated 43 million children under the age of five being overweight or obese, according to a study carried out in 2011.

2.4 Causes of obesity

The causes of obesity include overeating, physical inactivity, genetics, metabolism, environment, behavior, and culture. A short discussion of some of these follows below:

- **Genetics**

  According to Medicinet, a person is more likely to develop obesity if one or both parents are obese. Also, genetics affects hormones involved in fat regulation. For example, one genetic cause of obesity is leptin deficiency. Leptin is a hormone produced in fat cells and also in the placenta. Leptin controls weight by signalling the brain to eat less when body fat stores are too high. If, for some reason, the body cannot produce enough leptin or leptin cannot signal the brain to eat less, this control is lost, and obesity occurs. The role of leptin replacement as a treatment for obesity is currently being explored.

- **Overeating**

  According to Medicinet, overeating leads to weight gain, especially if the diet is high in fat. Foods high in fat or sugar (for example, fast food, fried food, and sweets) have high energy density (foods that have a lot of calories in a small quantity of food); epidemiological studies have shown that diets high in fat contribute to overweight.

While sugars are found naturally in many foods, such as fruits and milk, the addition of sugars to food products adds to the total energy content of the product. SSBs have added sugars, such as sucrose or high-fructose corn syrup. A 330ml or 12oz portion of sugar-sweetened carbonated soft drink typically has some 35g (almost nine teaspoons) of sugar and provides approximately 140 kcal of energy, generally with little other nutritional value (National Treasury, 2016:4.)

SSBs have a high sugar content, no nutritional value and are processed differently by the body when consumed compared to food; it should also be noted that fluid calories are not accounted for in the same way as calories from solid foods. Generally, evidence suggests that SSBs are generally consumed quickly and do not provide the same feeling of fullness that solid food provides, so that consumers tend not to reduce their intake of other foods sufficiently to compensate for the extra calories provided by sugar-sweetened beverages. The research has also indicated that excess calories contribute to being overweight and to obesity as they can be readily converted to body fat and stored within various tissues (National Treasury, 2016:6.) The role of carbohydrates in being overweight is not clear. Carbohydrates increase blood glucose levels, which in turn stimulate insulin release by the pancreas; insulin promotes the growth of fat tissue and can cause people to be overweight. Some scientists believe that simple carbohydrates (sugars, fructose, desserts, soft drinks, beer, wine, etc.) contribute to being overweight because they are more rapidly absorbed into the bloodstream than complex carbohydrates (pasta, brown rice, grains, vegetables, raw fruits, etc.) and thus cause a more pronounced insulin release after meals than complex carbohydrates. This higher insulin release, some scientists believe, contributes to being overweight.

- **Frequency of Eating**

The relationship between frequency of eating (how often you eat) and weight is somewhat controversial. There are many reports of overweight people eating less often than people with normal weight. Scientists have observed that people who eat small meals four or five times daily, have lower cholesterol levels and lower

and/or more stable blood sugar levels than people who eat less frequently (two or three large meals daily). One possible explanation is that small frequent meals produce stable insulin levels, whereas large meals cause large spikes of insulin after meals.

- **Physical inactivity**

  Less physically active people burn fewer calories than people who are active. The National Health and Nutrition Examination Survey showed that physical inactivity was strongly correlated with being overweight in both sexes.

- **Medications**

  Medications associated with being overweight include certain antidepressants (medications used in treating depression); anticonvulsants (medications used in controlling seizures such as carbamazepine [Tegretol, Tegretol XR , Equetro, Carbatrol] and valproate [Depacon, Depakene]); some diabetes medications (medications used in lowering blood sugar such as insulin, sulfonylureas, and thiazolidinediones); certain hormones such as oral contraceptives, and most corticosteroids such as prednisone. Being overweight may also be observed in people who use some high blood pressure medications and antihistamines. The reason for being overweight associated with the medications differs for each medication.

- **Psychological factors**

  For some people, emotions affect eating habits. Many people eat excessively in response to emotions such as boredom, sadness, stress, or anger; while most overweight people have no more psychological disturbances than people of normal weight, about 30% of the people who seek treatment for serious weight problems have difficulties with binge eating.

- **Diseases**

  Diseases such as hypothyroidism, insulin resistance, polycystic ovary syndrome, and Cushing's syndrome are also contributors to being overweight and to obesity.

- **Social issues**

  An association between social issues and obesity has been established; lack of money to purchase healthy foods or lack of safe places to walk or exercise can increase the risk of obesity.

- **Ethnicity**

  Ethnicity factors may influence the age of onset and the rapidity of gaining excessive weight. African-American women and Hispanic women tend to experience being overweight earlier in life than Caucasians and Asians, and age-adjusted obesity rates are higher in these groups. Non-Hispanic black men and Hispanic men have a higher obesity rate then non-Hispanic white men; however, the difference in prevalence is significantly less than in women.

- **Childhood weight**

  A person's weight during childhood, the teenage years, and early adulthood may also influence the development of adult obesity and being overweight. For example,

  - being mildly overweight in the early 20s was linked to a substantial incidence of being overweight by age 35;
  - being overweight during older childhood is highly likely to result in adult obesity, especially if a parent is also obese; and
  - being overweight during the teenage years is an even greater predictor of the adult being overweight.

- **Hormones**

  Women tend to gain weight especially during certain events for example pregnancy, menopause, and in some cases, with the use of oral contraceptives. With the availability of the lower-dose estrogen pills, however, weight gain has not been as great a risk.

2.5 The South Africa situation

According to Seedat (2016, 12), South Africa was identified as the country with the highest rate of overweight people in sub-Saharan Africa; it was found that 7 out of 10 women and 4 out of 10 men were overweight.

A study undertaken by the global pharmaceutical company GlaxoSmithKline indicated that South Africa was the third most obese nation worldwide, and found that 61% of the South African population was overweight or obese (Kerr,2012), compared with the global rate of under 30% (Chinyanga, 2016.) The shift towards fast food consumption has caused South Africans not only to be obese, but also malnourished (Teagle, 2016.)

According to Seedat (2016, 12), the South African economy lost R29 billion between 2009 and 2015 because of diseases caused by obesity; obese workers cost their employers 49% more than non-obese workers, in the form of paid leave. Furthermore, he states that obesity caused an increase of between 11% and 23% in health care costs in South Africa, depending on the severity of the obesity or comorbid disease.

Conclusion

The possibility of being overweight and obese in South Africa is high. This is caused by many factors, including excessive sugar intake, genetics, physical inactivity, and stress, many of which cannot be controlled externally. The next chapter discusses what sin taxes are, as well as illustrating the effects that an increase or decrease in the sin tax has had on the consumption of products subject to the sin tax.

CHAPTER 3: SIN TAX

3.1 Introduction

The South African government uses sin taxes to discourage unwanted behavior in the consumption of products that are subject to sin taxes, as well as to generate tax revenue. Sin taxes, the history of sin taxes, the advantages and disadvantages of sin taxes, and whether sin taxes influence behaviour in South Afrca will be discussed in this chapter.

3.2 History of sin taxes in South Africa

The Puritans in Massachusetts were the first to use sin taxes, also known as excise duties and levies, not only for government revenue, but also to reduce consumption; they taxed everything that they considered luxurious, from certain foods, sugar and spices, to clothing, tobacco and liquor. The use of sin taxes to reduce consumption did not end with the Puritans. Governments worldwide, including the South African government, have been taxing goods to reduce consumption (Tablot, 2012: 14.)

Lorenzi (2004:60) states that sin taxes are '*those government revenues garnered from the purchases or consumption of resources or services that encapsulate the following characteristics:*

- *Consumption exhibits an inelastic demand curve where the behaviour is addictive. A small change in behaviour will generate significant tax revenues, yet not eliminate the behaviour.*
- *The behaviour could be considered self-destructive or harmful to the individual. Immediate or negative long-term consequences are the cause of sinful behaviours.*
- *The behaviour generates negative externalities causing not only the sinner, but also the people around the sinner, to suffer.*
- *The sinful behaviour is generally considered to be socially undesirable or to be dysfunctional in terms of social welfare*'.

In the case of the South African Revenue Service (SARS), excise duties and levies are imposed mostly on high-volume daily consumable products (e.g. petroleum, and alcohol and tobacco products) as well as certain non-essential or luxury items (e.g. electronic equipment and cosmetics); the primary function of these duties and levies is to ensure a constant stream of revenue for the government, with a secondary function of discouraging consumption of certain harmful products, i.e. harmful to human health or to the environment.

According to SARS, excise duties are payable by manufacturers of the following products:

- Malt beer
- Traditional African beer
- Spirits/liquor products
- Wine, vermouth and other fermented beverages
- Tobacco products
- Fuel/petroleum products
- Ad Valorem products
- Fuel levy and Road Accident Fund (RAF) levy on fuel/petroleum products
- Environmental levy products
- Certain types of plastic bags
- Electricity generation, using non-renewable or environmentally hazardous fuels (for example coal, gas, nuclear)
- Non energy-saving light bulbs
- Motor vehicle carbon dioxide (CO_2) emission levels
- Tyres

These sin taxes are levied in terms of the Customs and Excise Act No 91 of 1964. It is submitted that the revenue generated by these duties and levies amounts to approximately ten percent of the total revenue received by SARS.

Excise duties and levies are levied horizontally, as these are at a fixed rate; this means that the tax is regressive and is the same for consumers, irrespective of what the

consumer's income is. Poorer people might end up paying a higher rate on excise duties and levies relative to their income than richer people (Botha,2014:14.)

Botha further states that the economic efficiency of a sin tax is determined by the ability of the sin tax to cover the external costs arising from the action that is taxed; this way, the person performing the action that is taxed will carry the costs they cause to others around them.

The author argues that the administration of sin taxes is easy, as it is only a fixed percentage charged on the price of the product; this also makes sin taxes more flexible and easy to adjust, as there is only one rate that needs to change if the government wants to increase or decrease this tax.

3.3 Arguments for, and against sin tax

Storom (2012:24) questions whether a sin tax could be used to correct the behaviour of people, and to help control the world's environmental hazards. The author is of the opinion that outlawing bad behaviour or punishing it with criminal sanctions is less effective than leaving it be, but levying a fee on that specific activity.

Baldwin (2004) states that sin taxes on alcohol work better than prohibition did; they may work for other harmful substances, too.

Storom (2012:23) points out that the introduction of an environmental sin tax may be as successful in changing behaviour as the introduction of sin taxes on alcohol. The author believes that the introduction of a sin tax on alcohol was effective and that it can be used as a yardstick for measuring the potential successfulness of the implementation of a new sin tax to address environmental issues and any other issues

that affect people for which a sin or vice tax (tax levied to alter behaviour or consumption patterns) can be levied.

He questions why a similar approach is not being followed to address some of the environmental ills that are being observed in the world. He supports punishing bad behaviour instead of outlawing it, and proposes that environmental ills should be legalized, but that a fee should be charged to persons who transgress. Storom's logic is that those who want to pollute should be allowed to do so, but in return must pay cash (allowing the state to generate revenue.)

There are, however, researchers and authors who have questioned the levying of the excise taxes by various revenue authorities throughout the world, and put forward various reasons for scrapping or abolishing excise taxes (Storom, 2012:23.)

The Economist (2011) states: '*smoking rates have been falling for decades. Some 45% of people smoked in the mid- 1970's; now 21% do. High taxes are one reason. So are public campaigns, changing social mores (traditions) and smoking bans in workplaces introduced in Britain in 2007. The Office of Budget Responsibility in the United Kingdom predicts that tobacco receipts, now 0,6% of GDP, will supply half of that in 2030.'*

The abovementioned article also mentions that the main reason that government revenues from cigarettes will decrease to 0,3% of GDP in 2030 is because of the illegal trade in cigarettes - the smoking population of the UK has been enticed into illegally importing cigarettes into the country in order to avoid the increasing excise duties payable on cigarettes. It stresses that excise duty is not the only reason why smoking rates in Britain have decreased. The decrease can be ascribed to tighter smoking control and curbing the illegal trade in cigarettes, as well as to sin taxes.

However, the Economist (2011) expresses the opinion that the decreasing level of sin taxes, as a result of the tax having the desired effect and decreasing consumption, will have to be supplemented by another type of tax, as the government budget will still require the revenue generated by sin taxes to be collected. Although sin taxes are not the only reason for decreased consumption, they have the ability to alter the spending habits of the consumers of the products that are seen to be a vice by society. The evidence is that the number of smokers in Britain, as well as the consumption of alcohol, has declined because of the introduction of increased sin taxes. But, the decreased revenue collection will only lead to additional taxes being raised in order to collect the same fiscal revenue, which may not be appreciated by the public at large.

Storom (2012:24) questioned the use of the sin tax as a means to immediately decrease budget deficits in the State of Michigan, USA, as she was of the opinion that the 75 US cents tax on cigarettes helped the federal government to fill immediate gaps in the budget and did nothing to correct the deeper chronic problem of the multimillion dollar mismatch between the revenues that the state generated and what the state spent in 2004. Storom (2012:24) dismissed the idea of a sin tax for the primary purpose of breaching the fiscal deficit that the State of Michigan had been experiencing at the time. As pointed out above, government's purpose for levying an excise tax is to collect a steady stream of income (Storom, 2012:24.)

Storom (2012:24) recommended that the state of Michigan should implement a tax that would provide long-term sustainable tax revenues, as the issue with revenues collected from products seen as vice products is that the revenues will stop growing and will even out in the future, as these revenues do not continue growing in line with the budget burdens of the government, such as healthcare increases.

Criticism has also been levied against sin taxes because of the notion that they will be bad for small business and for society as a whole (Storom, 2012:25).

Keating (2010) argues that the sudden attempts by government and certain lobby groups to impose sin taxes on certain industries is driven by the government's need to generate tax revenues and has nothing to do with the perceived notion of wanting better health or saving the environment. Keating (2010) states that sin taxes spell trouble on various fronts:

- All increases in sin tax repatriate money from the private sector to the government.
- Increases in prices as a result of sin taxes will negatively affect consumers as they will be met with increased prices and fewer choices.
- Retailers directly experience lost sales because of higher tobacco, alcohol and food taxes.
- As cigarettes taxes increase, additional costs related to an expanding underground economy are engendered, while smuggling feeds larger criminal activity.

Keating (2010) states that, with the increase in prices caused by levying sin and food taxes, the overall economy is affected, by draining resources away from the private sector, and handing more resources over to government.

Keating's (2010) further states there is the overarching problem beyond straightforward economics. Excise taxes pushed by anti-tobacco, anti-fossil-fuel, anti-alcohol, and anti-fatty-foods zealots mean an expansion of the 'nanny' state at the cost of reduced individual freedom. Keating (2010) provides that:

'*…not only does government wind up grabbing more dollars from the pockets of consumers and the cash registers of businesses, but politicians, their appointees, and the special interests gain more control over every day decision-making — from the types of cars people drive to what they eat and drink'*.

Keating (2010) dismisses the use of an excise tax to change consumer behaviour, as in his opinion, this creates a 'nanny' state (Storom, 2012:26).

3.4 Influence of sin tax on consumer behaviour in South Africa

The best examples of paternalism currently enforced by many governments, including South Africa, are the excise taxes on tobacco and alcohol. Both internationally and in South Africa, research has proved that sin taxes on tobacco and alcohol could be effective in reducing consumption; cigarettes and alcohol are universally acknowledged as being addictive. Modern excise taxes tend to be targeted at goods which are known to be addictive, and thus, these taxes may assist people in controlling their addictions (Talbot, 2011: 14.)

3.4.1 Tobacco Consumption

Chaloupka and Warner (1999:7) state that, given the addictive nature of smoking, long-term adult smokers are likely to adjust less quickly to changes in price than youth who have been smoking for a relatively short time, if at all. Furthermore, peer behaviour is likely to be much more influential for youth, multiplying the effects of price on youth smoking. Therefore, an increase in the cigarette price directly reduces youth smoking, and then again, indirectly reduces it through its impact on peer smoking. There are also two more reasons. Firstly, the fraction of disposable income a young smoker spends on cigarettes is likely to exceed that spent by an adult smoker. Secondly, compared to adults, youth are more likely to be present-oriented.

Originally tobacco sin taxes were introduced for government revenue reasons only; only later did the health consequences of smoking, propelled by research showing that sin taxes could be effective in decreasing the consumption of tobacco encourage governments to start taxing tobacco products more vigorously (Talbot, 2011: 14.)

According to Talbot (2011:14) the prevalence of smoking is definitely decreased by an increase in the price of tobacco products. Thus, it can be concluded that excise duties and levies on cigarettes have the desired effect on the behaviour of smokers, by reducing the incidence of smoking.

Van Walbeek (2003:8) points out that increases in tobacco taxes are the most effective in reducing tobacco use in South Africa. He found that, all other factors (e.g. income) remaining constant, the consumption of cigarettes decreases by between 5 and 7% for every 10% increase in the real price of cigarettes.

3.4.2 Alcohol consumption

According to the South African Revenue Service's Discussion Paper - a Review of the Taxation of Alcoholic Beverages in South Africa (2014:41) - the exact relationship between alcohol prices and levels of alcohol consumption and abuse are also open to divergent views. Some research reveals that pricing measures in the form of alcohol taxation or other pricing interventions are the most effective instrument in reducing alcohol consumption. But others see pricing measures as a blunt instrument that cannot be targeted at those most vulnerable and at risk of alcohol abuse, and thus do little to curb alcohol abuse, while creating unintended effects throughout the economy.

The World Health Organisation states that effective policy interventions to combat alcohol abuse include price and tax measures, control on availability, and controls on advertising. Alcohol excise tax is clearly an important intervention, but remains only one instrument in a basket of complementary measures that should ideally be applied in combination to effectively address the problems related to alcohol abuse. In fact, the impact of increased sin taxes on health could potentially be adverse, where the resultant higher prices cause consumers to switch to informally and illegally-produced alcoholic beverages that may be hazardous. Non-tax interventions that focus specifically on changing dangerous drinking patterns of at-risk groups, are important complementary interventions in tackling alcohol

abuse (South African Revenue Service's Discussion Paper - a Review of the Taxation of Alcoholic Beverages in South Africa (2014:41.))

It is also important to note that heavy drinkers and those with problematic drinking patterns are less responsive to excise tax changes, and therefore price increases, when compared to moderate drinking behaviour (South African Revenue Service's Discussion Document - a Review of the Taxation of Alcoholic Beverages in South Africa, 2014:41.)

According to Storom (2012:29), the beer market in South Africa is deemed to have large growth prospects as the emerging middle class in South Africa continues to grow. This may be a reason why beer consumption is not affected by changes in the sin tax levied on the product, as beer sales have been seen to increase over the period, despite increases noted in sin taxes as well. Also, SABMiller continues to produce beers for low income groups, whose levels of consumption continue to grow in South Africa.

Evidence suggests that the negative correlation between the percentage change in beer sales and the percentage change in excise duties levied on beer is indicative of the fact that an excise duty on beer has not been effective in reducing the consumption patterns of consumers (Storm, 2012:29.)

3.5 Conclusion

Tobacco sales seem to be influenced by an increase in sin taxes, as the increase in cigarette taxes resulted in a decrease in consumption in South Africa. But the correlation between tobacco sales and cigarette taxes is deemed to be low, as the percentage change in sin tax and the percentage change in tobacco consumption are not in proportion. Therefore, although sin taxes have an effect on the consumption of tobacco, the effect is deemed to be weak.

Chapter 4 examines the effect of a sugar tax on behavioural change and decision-making in other countries, as well as a detailed account of the opinions of authors in favour of a sugar tax, and those researchers who oppose a sugar tax in other tax jurisdictions.

CHAPTER 4: SUGAR TAX IN OTHER TAX JURISDICTIONS

4.1 Introduction

In the previous chapter, the impact of sin taxation on alcohol and tobacco was discussed**.**

According to World Cancer Research Fund International, the governments of the countries (see Annexure II and Annexure III), cities and groups listed below have introduced a sugar tax with the hope of reducing the condition of being overweight and obesity in their citizens:

- In June 2015 the Government of Barbados passed a 10% sugar tax on locally-produced and imported sugary drinks, including carbonated soft drinks, juice drinks, sports drinks, and others. Drinks exempt from the sugar tax include 100% natural fruit juice, coconut water, plain milk, and evaporated milk. The sugar tax came into effect on 1 August 2015, and will be reviewed after two years. Revenue from the tax will be utilised for the health sector.
- In December 2015, the Belgian Government increased the sugar tax on soft drinks by 0,03 euros per litre as part of a general 'health tax' (Law on measures to strengthen job creation and purchasing power - 26 December 2015). The now 0,068 euro per litre sugar tax came into effect on 1 January 2016 and is applied to all soft drinks, including non-alcoholic drinks and water containing added sugar or other sweeteners or flavours. The sugar tax is also applied to any substance intended for the use of manufacturing soft drinks (liquid: 0,41 euros/litre; powder: 0,68 euros/100kg.)
- Chile applies an 18% ad valorem tax to sugary drinks with sugar content greater than 6,25 g of sugar per 100 ml, effective from 1 January 2015. Prior to this, a 13% ad valorem tax was applied to the sugar drinks as of 1 October 2014. Sugary drinks include all non-alcoholic drinks with added sweeteners including energy drinks and waters. Sugary drinks with less than 6,25 g of sugar per 100 ml are taxed at 10%.

- With effect from 1 September 2015, the Dominican Republic has applied a 10% sugar tax to food and drinks with high sugar content, including sweets, candy, chocolate bars, soft drinks, and other sweetened drinks (including energy drinks.) Revenues from the tax will be used for a national "Get Healthy" campaign.
- Finland imposed a sugar tax on non-alcoholic beverages and confectionery for most of the 20th century, for revenue-raising purposes. A sugar tax on confectionery was removed in 2000, but re-introduced in 2011. Currently, a sugar tax is levied on confectionery, chocolate, and ice cream, in addition to non-alcoholic beverages. In 2014, the sugar tax rate was EUR 0,95/kg by weight for confectionery and ice cream, EUR 0,220/L for beverages with more than 0.5% sugar, and EUR 0,11/L for other non-alcoholic beverages. Producers with an annual production volume of less than 10 000 kg or 50 000 litres are exempted from the sugar tax. The tax on candy and ice cream will be scrapped from 1 January 2017. The reason for its removal is that not all sugary products fell within the tax net, and thus some products became more expensive to produce (Seedat, 2016:13.) The sugar tax on non-alcoholic beverages remained.
- In effect from 1 January 2012, the French sugar tax is an excise duty applied to drinks with added sugar and artificial sweeteners, including sodas, fruit drinks, flavoured waters, and 'light' drinks. This tax is around 11 euro cents per 1,5 litres of soda and is used to raise revenue for the general budget.
- Various food and beverage taxes have been in place in French Polynesia since 2002 to reduce consumption and to raise revenue, e.g. domestic excise duty on sweetened drinks and beer; import tax on sweetened drinks, beer and confectionery; and a tax on ice cream. From 2002 to 2006, tax revenue went to a preventive health fund; from 2006, 80% has been allocated to the general budget and earmarked for health. The sugar tax is 40 CFP per litre on domestically-produced sweet drinks, and 60 CFP per litre on imported sweet drinks.
- Hungary passed Act CIII on the Public Health Product Tax in July 2011. Effective from September 2011, a health tax has been applied to the salt, sugar and caffeine content of various categories of ready-to-eat foods, including soft drinks (both sugar- and artificially-sweetened), energy drinks, and pre-packaged sugar-

sweetened products. The tax is applied at varying rates, for example, soft drinks are taxed at $0,24 per litre and other sweetened products at $0,47 per litre. The health tax also applies to products high in salt, including salty snacks with >1g salt per 100g, condiments with >5g salt per 100g, and flavourings with >15g salt per 100g.

- From 1 January 2013, Mauritius has applied a sugar tax on the sugar content of all soft drinks, whether imported or produced domestically. Soft drinks mean any aerated beverage, syrups, and fruit squashes, cordials and drinks. Fruit and vegetable juices and drinks containing only artificial sweeteners are excluded from sugar tax, as are soft drinks produced for export only. For 2014, sugar tax amounted to MUR 0,3 ($0,01) per gramme of sugar content, up from MUR 0,2 in 2013 ($0,006.)
- Soft drinks, both imported and locally-produced, have been taxed in Samoa from 1984. From 1984 to 2008, sugar tax amounted to 0,3 Samoan Tala per litre; in 2008 the rate changed to 0,4 Samoan Tala per litre. Samoa imposed a ban on high-fat turkey tails in 2007. The ban was lifted when Samoa joined the World Trade Organization in 2012 and a 300% import duty was set for two years, followed by a 100% import duty.
- From 27 May 2014, a £0,75 per litre excise duty has been applied to high-sugar carbonated drinks in St Helena. 'High-sugar carbonated drinks' means drinks containing ≥15 grammes of sugar per litre.
- As of 2013, Tonga has introduced a tax on soft drinks containing sugar or sweeteners at 1 Pa'anga per litre.
- In November 2014, the city of Berkeley, California, in the United States of America, passed a law taxing sugary drinks, that came into effect on 1 January 2015. Sugar tax of $0,01 per fluid ounce of a sugar-sweetened beverage applies to soda, energy drinks and heavily presweetened tea, as well as to the "added caloric sweeteners" used to produce them (note: tax on an ounce of "added caloric sweeteners" would be significantly more than $0,01.) Infant formula, milk products, and natural fruit and vegetable juices are not subject tax.

- In November 2014, the Navajo Nation adopted the "Healthy Diné Nation Act" into law, including a 2% tax on "minimal-to-no-nutritional value food items", sugar-sweetened beverages; prepackaged and non-prepackaged snacks stripped of essential nutrients and high in salt; and saturated fat and sugar, including sweets, chips and crisps. The tax was introduced on 1 April 2015. Revenue from the tax is used for the Community Wellness Development Projects Fund, which is used for projects such as farming, vegetable gardens, greenhouses, farmers' markets, healthy convenience stores, clean water, exercise equipment, and health classes. The tax is collected through self-assessment.
- As part of the #SugarSmartCity campaign, Brighton & Hove City Council, in the United Kingdom, is promoting a voluntary 'sugar tax'. The City Council actively encourages food outlets to adopt a voluntary £0,10 tax on all non-alcoholic sugar-sweetened drinks sold. Money raised from the voluntary tax goes to the Children's Health Fund, set up by Sustain (the Alliance for Food and Farming in partnership with Jamie Oliver in August 2015), to support food education and health initiatives for children.

In this research report, an analysis has been carried out on sugar tax in the United States, Mexico, the United Kingdom, Denmark and South Africa. The advantages and disadvantages in each country will also be discussed.

4.2 Introduction of sugar tax in other countries

A discussion on each country will follow below.

4.2.1 United Kingdom

In the 2016 budget speech Chancellor George Osborne announced that the United Kingdom would charge a sugar tax on sugary drink manufacturers. This has come in response to concerns regarding the increasing rate of obesity amongst children in the United Kingdom. The tax amount charged will depend on the sugar content in the sugar-sweetened beverage. The tax will only come into effect during 2018, therefore

providing soft drink manufacturers with an opportunity to reformulate their product recipes and sugar content. (Seedat, 2016:15)

According to Seedat (2016:15), beverages with a sugar content exceeding 5 grammes per 100 millilitres will be taxed at a rate of £0,18 per litre (Triggle, 2016). Beverages with a sugar content exceeding 8 grammes per 100 millilitres will carry a tax of £0,24 per litre. Examples of beverages with high sugar content include Coke® and Pepsi® while those with lower sugar content include Fanta® and Sprite®. Pure fruit juices and milk-based beverages will be exempt from the sugar tax.

Seedat (2016:15) states that this tax will raise an income of approximately £520 million per year; it will be utilised to fund sport in primary schools in England. Tax revenue generated in the rest of the United Kingdom will be spent according to the discretion of the 'devolved administrations' of Scotland, Wales and Northern Ireland.

Arguments in favour of sugar tax in the United Kingdom

Those in support of the sugar tax have lauded the tiered system of levying the tax. Drinks with a sugar content of less than 5 grammes per 100 millilitres will be exempt from the sugar tax. Those with a medium sugar content of between 5-8 grammes per 100 millilitres will be charged £0,18 per litre and drinks with a sugar content exceeding 8 grammes per 100 millilitres will be charged £0,24 This is believed to encourage consumers to select drinks with a lower sugar content (Seedat, 2016:16.)

Manufacturers may opt to lower the sugar content of beverages and increase marketing of beverages with a low sugar content (Seedat, 2016:16.)

Another favourable aspect of the sugar tax is that small producers will be exempt from this tax (Seedat, 2016:16.)

Criticism against the sugar tax in the United Kingdom

There has been much opposition to this tax according to Seedat (2016:16), with the following reasons being cited:

- Firstly, despite the tax being imposed on soft drink manufacturers, consumers will ultimately bear the burden, as increased costs will be transferred to them directly. The sugar tax will affect poor citizens most, as a larger percentage of their earnings is spent on paying taxes;
- Secondly, the sugar tax will increase inflation. The British Government will have to pay £1 billion upfront in 2018 and 2019 because of the increased costs of borrowing as a result of inflation increases ;
- Thirdly, milk-based drinks that will be exempt from sugar tax may contain more sugar than soft drinks, and other foods, including *inter alia* sweets, chocolate and cereal, that may have a high sugar content, will not be taxed; and
- Finally, some people believe even more tiers are required for the tax to be effective in reducing sugar intake.

4.2.2 Mexico

Mexico introduced a sugar tax on sugar-sweetened beverages in response to increased obesity rates. The country has the highest per capita soda consumption worldwide. During 2012, the average Mexican citizen consumed 163 litres of SSBs. (Seedat,2016:17)

One 330 millilitre can of Coke® (Coca-Cola®) alone represents 7% of daily caloric intake (Seedat, 2016:17). This is well in excess of the recommendation made by the World

Health Organization, namely, that added sugar be limited to 5% of the daily calorie intake. The aim of the sugar tax is to reduce soda consumption and lower burgeoning obesity rates.

Mexico introduced the sugar tax in January 2014. The sugar tax was imposed on all sugar-sweetened drinks; whether in the form of powder, syrup, flavour extract, or actual sugar. This includes *inter alia* soda drinks, fruit juices, energy drinks and milk products. The tax is charged at a rate of 1 Mexican Peso per litre of sugar-sweetened beverage The estimated revenue from the sugar tax was expected to equate to £693 million The revenue raised, however, was a third more than estimated and regrettably, the revenue raised was not utilised to combat obesity (Seedat, 2016:17)

Arguments in favour of the sugar tax in Mexico

According to research published in the British Medical Journal, the tax on sugar-sweetened drinks cut the sales of soft drinks by 12% in the first year (Seedat, 2016:17.) The greatest reduction came in the poorest households, where monthly purchases of sweet drinks fell by 17% (Telegraph, 2016.) Research performed across 53 cities in Mexico and US (including more than 6 200 households) demonstrated that the average person purchased 4,2 litres fewer sugar-sweetened drinks (Telegraph, 2016.) Non-sugar sweetened drinks and bottled water gained popularity with an increase in sales of 4% during 2014 (Seedat,2016:17.) According to Tom Sanders, professor of Nutrition and Dietetics at King's College in London, Mexico is a poor country compared to the UK and therefore a sugar tax would have a significant impact upon sugar-sweetened soft drink sales (Telegraph, 2016.) It was submitted that the reduction in consumption would reduce obesity by 1% (Seedat, 2016:17).

Dr Juan Rivera Dommarco, director of the Mexican Research Centre in Nutrition, noted that more than 400 000 cases of diabetes would be prevented by 2050 if the sugar tax remained (World Health Organisation, 2016: 240.)

Research demonstrated that consumers consumed fewer soda drinks following an educational campaign that linked diabetes mellitus to sugar-sweetened beverages (Seedat, 2016:18.)

Criticism against the sugar tax in Mexico

Soft drink manufacturers in Mexico claim that sugar-sweetened beverages form less than 10% of daily caloric intake and thus the tax cannot be effective in curbing obesity (Seedat, 2016:18.)

According to a study performed by the Beverage Marketing Corporation, the introduction of the sugar tax system resulted in the loss of 3 000 jobs in Mexico in the first quarter of 2014 (Seedat, 2016:18.) Furthermore, it demonstrated that the average daily caloric intake decreased by just 0.2% in Mexico (Seedat, 2016:18.)

The National Institute of Public Health in Mexico is of the view that a higher levy is needed for the tax to be effective. Mexican Senator, Armando Rios Piter, considered doubling the tax rate to decrease the burgeoning health costs associated with increased morbidity caused by soft drink consumption (Seedat, 2016:18.)

4.2.3 The United States of America

A tax on sugar-sweetened beverages was implemented in only two cities in the United States, i.e. Berkeley and Philadelphia. The sugar tax in Berkeley came into effect in

March 2015 at a rate of $0,01 per ounce of sugar-sweetened beverage The rate for syrups (used to sweeten drinks) was calculated by taking into account the volume produced by the syrup The tax was imposed on drinks high in sugar content and low in nutrient content i.e. soda drinks, energy drinks, sugar-sweetened juices, and syrups used to sweeten drinks. Pure fruit juices and drinks with milk as the primary ingredient were exempt from the tax In contrast to taxing the beverage manufacturers, the tax was imposed on the companies distributing these beverages throughout Berkeley, and was added to their licence fee. (Seedat, 2016:19)

Seedat (2016:19) states that the sugar tax on sugar-sweetened beverages became effective in Philadelphia on 16 June 2016. The tax was charged at a rate of$0,015 per ounce of sugar-sweetened beverage and the tax was estimated to raise revenue of $90 million in its first year.

Funds were to be used to fund pre-kindergarten facilities, community schools and recreation centres (The Guardian, 2016.)

Arguments in favour of the sugar tax in the United States

Berkeley community leaders advocated for a sugar tax to combat the rise in diabetes mellitus amongst its citizens, particularly its children It was found that 40% of Grade 9 students in Berkeley were overweight It was estimated that 2 in 3 Californian teenagers consumed a sugary drink each day These drinks were considered to be the primary source of sugar in American diets It was noted that the sugar contained in soft drinks increased the risk of developing type 2 diabetes mellitus more than the sugar present in food (Ecology Center, 2016.)

A panel of health experts was established to advise the Berkeley City Council on how to best apply the tax revenue raised to promote a healthy lifestyle amongst children, and to reduce sugar intake As at March 2016, $1,5 million has been raised from the sugar tax It has been utilised to establish school gardening programmes (Seedat, 2016:20.)

It was agreed that the objective of the sugar tax, i.e. to promote the health of Berkeley's citizens, has been achieved. Introduction of the tax further raised awareness about the direct relationship between sugar intake, obesity, diabetes mellitus and other comorbid diseases. Tax revenue generated will continue to be utilised in programmes to promote health and reduce the consumption of sugar-sweetened beverages (Seedat, 2016:20.)

Research performed by the Public Health Institute in Oakland and the University of North Carolina demonstrated that the tax has been passed on to consumers by supermarkets and small businesses. This has been a significant step in reducing consumption, that could lead to a reduction in obesity and related comorbid diseases, such as diabetes mellitus.(Seedat, 2016:20.)

The improvement of public health in Philadelphia, where more than 68% of adults were overweight, is regarded as an added benefit of the tax (The Guardian, 2016.)

Arguments against the sugar tax in the United States

Many reports have demonstrated that the sugar tax has in fact failed to reduce consumption. People in Berkeley already travel extensively to purchase groceries; thus the risk of cross-border shopping (and seemingly reduced local consumption) is high (Seedat, 2016:19.)

The prices of sugar-sweetened drinks did not increase as significantly as those in other countries; therefore there would not be as high a reduction in consumption rates, nor as large an improvement in health (Seedat, 2016:19.) Less than half of the sugar tax was passed on to consumers It was believed that only 22% of the tax was passed on to consumers of Pepsi® and Coke®. (Seedat, 2016:19.)

4.2.4 Denmark

Denmark abolished its sugar tax on 1 January 2014 - a tax that had been effective since the 1930s. Removal of the tax took place in two stages: first by a 50% reduction in July 2013 and then by complete abolishment from January 2014. This was in a bid to stimulate favourable conditions for growth and employment in Denmark. In 2013, the tax was levied at a rate of €0,22 per litre. In spite of grossing €60 million in tax revenue each year, €38,9 million in VAT was lost through the purchase of illegal soft drinks (Seedat, 2016:20.)

Arguments in favour of the sugar tax in Denmark

The sugar tax raised tax revenue of €60 million per year; the tax was implemented to reduce sugar intake (Seedat, 2012:21.) The sugar tax was abandoned after 15 months, however, when surveys suggested that only 7% of Danes had reduced their sugar intake (The Spectator, 2016.)

Criticism against the sugar tax in Denmark

There were several reasons for the abolishment of the tax. It was purported that the negative consequences outweighed the benefits. One reason was the regressive nature of the tax. Another was the impact of cross-border shopping on employment in the regions near borders. It was estimated that 5 000 jobs were lost through it. Cross-border shopping also affected the environment adversely (UNESDA, 2013.)

Denmark also abolished a fat tax that had been in place for a year (Seedat, 2016:21.) The tax was initially introduced in a bid to improve the health of Danish citizens. The tax was levied at 16 Kroner (£1,78) on food items with more than 2,3% saturated fat (The Spectator, 2016.)

The criticism against it was the same as for sugar-sweetened beverage tax, i.e. cross-border shopping adversely affecting employment. It inflated food prices, raising the cost of living. Some citizens merely continued to purchase fatty food by opting for cheaper brands, thus defeating the purpose of improving health. A minimal decrease in obesity was noted. Only 7% of Danes reduced their intake of fatty foods (Seedat, 2016:21.)

4.3 Conclusion

A sugar tax has been implemented in many countries in a bid to curb obesity. Research has shown that the effect of a sugar tax on obesity rates has been minimal and will need to be coupled with alternative methods to be effective.

The implementation of a sugar tax has further brought many negative consequences: increased unemployment and rates of inflation, and cross-border shopping.

CHAPTER 5: SUGAR TAX IN SOUTH AFRICA

5.1 Background

In the February 2016 Budget, The Minister of Finance, Pravin Gordhan, announced a decision to introduce a tax on SSBs with effect from 1 April 2017, to help reduce excessive sugar intake. This announcement sought to address the issue of obesity in South Africa caused by excess sugar intake, as South Africa has been ranked the most obese country in sub-Saharan Africa, as per the National Treasury Policy Paper on the taxation of SSBs, released on 8 July 2016.

Prior to 1 April 2002, South Africa levied a tax on soft drinks and mineral water. The tax was imposed on a volume or per litre basis, and was not related to any health benefit objectives or externalities. It was thus abolished through lobbying by the non-alcoholic beverage industry. The rate of tax ranged from a peak of 14,83c/litre to 6c/litre, before it was abolished (at an estimated revenue loss to the fiscus amounting to R135 million) (Baloyi, 2016:2.)

The behavioural taxation of SSBs was arrived at as part of the action plan of the National Health Department's Strategic Plan for the Prevention and Control of NCDs 2013 – 2017, and the National Strategy for the Prevention and Control of Obesity 2015 – 2020 to reduce obesity by 10% by 2020.

In its Action Plan, the Department of Health had found unhealthy diets to be one of four major risk factors. The research done by the department identified the consumption of excess sugar from SSBs and high-caloric energy-dense foods as major contributing factors to weight gain, in both adults and children. The strategy also suggested a number of measures to address non-communicable diseases (NCDs), especially unhealthy diets; amongst these measures, taxes on foods high in sugar were listed as a potentially very cost-effective strategy for addressing diet-related diseases.

The proposed tax thus must be viewed against the backdrop of the rising rate of obesity in South Africa caused by overconsumption of sugar. Obesity is a global epidemic and a major risk factor linked to the growing burden of NCDs, including heart diseases, type 2 diabetes, and some forms of cancers. Globally, NCDs are the leading causes of mortality, resulting in more deaths than all other causes combined, with the world's low-and middle-income populations being the most affected. These diseases also have an effect on government healthcare spending. In South Africa, the problem of obesity has grown over the past 30 years, resulting in the country's being ranked as the most obese country in sub-Saharan Africa (National Treasury, 2016:7.)

The National Treasury Policy Paper on the Taxation of SSBs also identified consumption of sugary foods and drinks as the primary cause of tooth decay; dental extraction is the major cause for the use of general anaesthesia on young children, affecting particularly children from deprived households. Watt and Rouxel (2012) state that, at the extreme, it can cause malnutrition in both children and adults and significantly reduce quality of life because of pain and discomfort. The report on the National Children's Oral Health Survey provides that the mean national caries prevalence in 4-5 year olds is 50,6% and in 6 year olds is 60,3%; the burden of untreated dental caries in South Africa according to the survey was reported to be 46,6% in 4-5 year olds and 55,1% in 6 year olds.

The tax on SSBs was perceived to be the most cost effective means of achieving the goal of curbing obesity. The expected cost per person of imposing the tax on SSBs was R0,20. This was the cheapest option, compared to the cost of introducing the following strategies: food advertising regulation (R0,90 per person), food labelling (R2,50 per person), worksite interventions (R4,50 per person), mass media campaigns (R7,50 per person), school-based interventions (R11,10 per person), and physician counselling (R11,80 per person) (Seedat, 2016: 23.)

The World Health Organisation (2015) states that the increasing intake of free sugars, particularly in the form of sugar-sweetened beverages , increases overall energy intake and may reduce the intake of foods containing more nutritionally-adequate calories, leading to an unhealthy diet, weight gain, and an increased risk of NCDs. The WHO's 2013 Global Action Plan encourages Member States, in a manner appropriate to their national contexts, to consider the introduction of such taxes and subsidies, that will:

- create incentives to encourage behaviours associated with improved health outcomes,
- improve the affordability and encourage the consumption of healthier food products, and
- discourage the consumption of less healthy options.

5.2 The Sugar-Sweetened Beverages Market in South Africa

In South Africa, the non-alcoholic beverage industry is made up of products such as juices, carbonated drinks, energy drinks, bottled water, iced tea, and dilutable beverages. However, it is dominated by carbonated drinks. The market predominantly consists of multinational beverage companies with a large market share (see Annexure I for a list of the role-players) (National Treasury, 2016:7.)

Growth in the non-alcoholic beverage sector has increased greatly since the early 1990s. Since 1998, the market for soft drinks in South Africa has more than doubled, from 2 294 million litres to 4 746 million litres in 2012. In 2007 a study on the diets of young children (aged 12 to 24 months) in urban South African communities identified that carbonated drinks were one of the most consumed drinks/foods among young children. The consumption of soft drinks was lower than that of maize meal and brewed tea, but more than that of milk. Consumption of SSBs at an early age sets a pattern for unhealthy dietary habits, leading to early-onset type 2 diabetes and weight

gain, which require chronic care over the child's lifetime. As a result, this is expected to increase public healthcare costs in the long term (National Treasury, 2016:7.)

According to the National Treasury (2016:7), the soft drink market has been able to expand by increasing the affordability, the availability, and the acceptability of these products; market research has also shown a higher proportion of consumption of SSBs by lower income groups.

5.3 Scope of the tax

In terms of scope, the tax is targeted at SSBs that are beverages containing added caloric sweeteners such as sucrose, high-fructose corn syrup, or fruit-juice concentrates, which include, but are not limited to: (i) soft drinks, (ii) fruit drinks, (iii) sports and energy drinks, (iv) vitamin water drinks, (v) sweetened iced tea, and (vi) lemonade, among others. Any beverage that contains only sugar naturally found (i.e. intrinsic sugars) in the structure of the ingredients would not be included in the tax (e.g. unsweetened milk and milk products, and 100% fruit juice.) The most accurate proxy for harm caused by SSBs is the (added) sugar content, and the advantage of this approach is that it is better targeted and the tax is in direct proportion to the level of sugar added in SSBs (Baloyi, 2016:2.)

SSBs are being targeted (not sugar-sweetened foods), because of their low nutritional value. SSBs are generally consumed quickly and do not provide the feeling of 'fullness' that food does. They are generally an addition to a meal, resulting in the consumption of extra calories than by just consuming the food alone. These extra calories, if not converted to energy, will be stored as fatty tissue, contributing to excessive weight gain and obesity (Seedat, 2016:23.)

5.4 Tax rate

It is therefore proposed that a tax rate of R0,0229 (2,29 cents) per gramme of sugar be implemented, based on the current product-labelling (see Annexure IV) framework. This tax rate roughly equates to a 20% tax incidence for the most popular soft drink (i.e. Coca Cola®, averaging 35 g/330 ml); using the current available price and sugar content of soft drinks as a reference point, the estimated tax would be in the region of R2,29 per litre of SSB, or R0,0229 (2,29 cents) per gramme of sugar contained in a litre of SSB. There is a bid to encourage nutritional-labelling - a legislative framework for nutritional- labelling is expected to be introduced in the near future (National Treasury, 2016: 3 & 21; Seedat, 2016: 24.)

Seedat (2016:23) states that a specific rate (cents per gramme) has been chosen for the sugar tax instead of an *ad valorem* rate (percentage of volume.) Therefore, the rate that has been selected will need to be regularly adjusted in order to take inflation into account.

A study found that a 20% tax on sugar-sweetened beverages would potentially reduce obesity in adults by 2,4%; this was based on a mathematical model comparable with that used in international studies. In India, it was estimated that a 20% tax would reduce obesity by 3% whilst a 20% tax rate in the United Kingdom was expected to reduce obesity by 1,3% (Seedat, 2016:23.)

5.5 Administration

The proposed tax on SSBs will be implemented through the Customs and Excise Act (Act 91 of 1964), as for the other excise duties and product-specific levies; an additional category for SSBs would have to be created under the Schedules to the Act as a levy on selected SSBs. The general excise administration principle (i.e. duty-at-source (DAS)) will be applied for ease of administration regarding the sugar tax (National Treasury, 2016:3.)

Producers or importers of the sugar-sweetened beverages will be required to pay the tax to SARS but they can, and in many instances do, pass the tax on to consumers. For the tax to have the desired behavioural impact on consumption, there has to be a passing on of the sin tax, otherwise it reduces profit margins, if it is absorbed by businesses. This could also encourage producers to reformulate their products in order to reduce the excise tax liability.

5.6 Arguments in favour of a sugar tax in South Africa

The use of a sugar tax to reduce obesity and promote a healthy lifestyle is based on 'standard economic theory'; the theory states that a change in price affects the demand for a product. If healthier food and beverage options are cheaper than their unhealthier food and beverage options, demand for the healthier option will rise. The amount by which demand is affected depends on the price elasticity of demand, the degree to which manufacturers and retailers pass through the tax to consumers, and the potential substitution effects, amongst others. The estimated price elasticity of sugar-sweetened beverages in South Africa is calculated to be – 1.299. Therefore, a tax rate of between 10% and 20% may result in a change in demand from sugar-sweetened beverages to healthier alternatives, thereby curbing obesity. Subsidising fruits, vegetables and other healthy foods, in addition to raising taxes, may further assist in promoting healthier food options and curbing obesity (Seedat, 2016:24.)

The National Treasury addressed the criticism of the tax as being regressive in nature (affecting the poor more than the rich) by stating that the benefits of a reduction in consumption of sugar-sweetened beverages will minimize this negative externality. Poorer communities are more affected by obesity, and therefore will benefit most. Poorer communities are more dependent on the public health-care system and it is hoped that this excise tax will reduce health-care costs in the future. South Africa already spends more on health care than is recommended by the World Health Organisation; the World Health Organisation recommends that 5% of GDP be spent on

health care, whilst South Africa at present spends 8,9% of GDP. This is likely to increase, should South African citizens' sugar intake not be kept under control (Seedat, 2016:24.)

5.7 Criticism of the sugar tax in South Africa

The Beverage Association of South Africa found that sugar-sweetened beverages accounted for less than 10% of daily caloric intake, and therefore the tax would not be effective in reducing sugar intake. It has also found that the goal of curbing 'excessive sugar intake' had failed in other countries. In a submission to National Treasury, the Beverage Association of South Africa claimed that between 62 000 and 72 000 jobs would be lost by the introduction of a sugar tax in South Africa (Seedat, 2016:24)

5.8 Conclusion

The proposed fiscal intervention in the form of a tax on SSBs is just one tool in South Africa's comprehensive package of measures to decrease the rising rate of obesity. Other planned interventions in this strategy include the following:

- The creation of an institutional framework to support inter-sectoral engagement.
- The creation of an enabling environment that supports the availability and accessibility of healthy food choices in various settings.
- Increasing the percentage of the population engaged in physical activity.
- Supporting obesity prevention in early childhood (in-utero - 12 years).
- Communicating with, educating and mobilising communities, and
- Establishing a surveillance system, strengthening monitoring and evaluation, and conducting research.

There are, however, risks that the taxation of sugar-sweetened beverages in South Africa might increase unemployment rates and may not be effective in reducing obesity, as has been the case in other countries.

CHAPTER 6: OVERALL CONCLUSION AND RECOMMENDATION

6.1 Introduction

The aim of this study is to determine whether or not a sugar tax could be used as a tool to decrease the rising rate of obesity in South Africa and therefore to improve the general health of South Africans and to generate additional government revenue (effective tax).

Chapter 2 discusses obesity around the world and in South Africa, the causes of obesity and being overweight, and the increased prevalence of being overweight and obese in children in South Africa and around the world.

Chapter 3 provides a detailed literature review on sin taxes in South Africa. This is discussed in order to determine whether or not sin taxes were able to manipulate the consumption of products attracting the sin tax. The arguments in favour of and against the sin taxes are also discussed in this chapter. This chapter also attempts to identify any possible problem areas with regard to a sugar tax in South Africa.

Chapter 4 is an overview of the countries which have considered or have already introduced sugar tax as well as the arguments in favour of and against the introduction of a sugar tax in each country selected for the study.

Chapter 5 discusses a sugar tax in South Africa, the history of the sugar tax in South Africa, as well as the opinions in favour of and against the implementation of a sugar tax in order to reduce the increased prevalence of being overweight and obese in South Africa.

This chapter summarises the research findings in relation to the research problem, provides recommendations relating to a sugar tax, and proposes areas requiring further research.

6.2 Recommendations

A sugar tax alone will minimally change the consumption patterns and behaviour of consumers. According to Seedat (2016), a sugar tax should be supported by the following additional measures, in order to meet its objective of curbing obesity:

- Educating communities on the adverse effects of obesity and the manner in which healthier lifestyles may be achieved. Education material demonstrating the harmful effects of sugar, such as 'The Sugar Film', should be screened on various television channels in the country.
- The broadcasting of thought-provoking campaigns (advertisements) demonstrating the negative effects of obesity and excessive sugar consumption.
- Labels on soft drinks that indicate that the beverage is more expensive because of a sugar tax. Manufacturers should further be required to indicate the adverse effects of sugar on the label, with the sugar content in bold print.
- Regulating sugar-sweetened soft drink marketing, as is done for alcoholic beverages.
- Drinking of water as a healthier alternative should be encouraged through education, as well as by ensuring that all South Africans have access to clean water.
- Healthier food options, including fruit and vegetables, should be subsidised, in order to encourage healthy eating patterns. Vegetable gardens should be cultivated in the poorer communities in South Africa. Exercise programmes

should be promoted and school sport funded. Sporting facilities, infrastructure, and teams should be developed.

6.3 Conclusion

It is submitted that the implementation of a sugar tax on its own will result in a negligible reduction of obesity and being overweight in South Africa.

The introduction of a sugar tax may result in job losses in South Africa, as is evident in Denmark and Mexico.

The Southern African Development Community (SADC) found that illicit trade in alcohol and tobacco caused a significant drop in excise tax and VAT revenue in Southern Africa. The study also noted that a price hike may not necessarily increase tax revenue for the government or decrease consumption by its citizens. Consumers may choose to shift to products with a lower price and quality (substitutes).

6.4 Future research

In the future, further studies may be carried out on the possibility of using the additional revenue generated through the imposition of a sugar tax to fund health care and medication. Studies can also be carried out on the impact of a sugar tax on jobs in the sugar and sugar-products industries, and on the impact of a sugar tax on poor people in South Africa**.**

ANNEXURE I: BEVERAGE LANDSCAPE IN SOUTH AFRICA

Company	Brands/Products	Distributors/Partners
Coca cola	Sparkling Beverages: Coca-Cola range, Fanta, Tab, Sprite, Sprite Zero, Stoney Ginger Beer, Sparletta, Twist, Schweppes	Amalgamated Beverage Coca Cola Fortune Peninsula Beverage Coca Cola Shanduka Beverages
	Still Beverages: BonAqua, Powerade, Valpre, Just Juice, Minute Maid, Minute Maid Nada, PowerPlay, Glaceau vitamin water	
	Appletiser Beverages: Appletiser, Grapetiser, Peartiser	
Tiger Brand	Energade, Hall's Fruit Juice Rose's	Bromo Foods
Pepsi	Pepsi range, Lipton, Mountain dew, Mirinda, Up	SoftBev
Pioneer Foods	Ceres, Liqui Fruit, Fruitree, Lipton Ice Tea, Wild Island, Daly's	

Quality Beverages	Jive range, Dixi, Planet, Abua Blue, Vimto	SoftBev
Shoreline Beverages	Coo-ee range, Creras, Coo-ee Premium Soda Water, Coo-ee Premium Tonic Water	SoftBev
Mofaya	Mofaya Energy Drink	Inhle Beverages Nampak Bevcan
Lantes Beverages	Volt Energy Drink	
Scheckter's Organic Energy	Scheckter's Organic Energy Drinks range	
Chill Beverages	Score energy Drink Big Easy Iced tea and Lemonade	

SOURCE: NATIONAL TREASURY

ANNEXURE II: INTERNATIONAL EXPERIENCE

Country	Tax base	Tax rate
United Kingdom Soft drinks industry levy: Implementation from April 2018	• soft drinks that contain added sugar • will be charged on volumes according to total sugar content • exclude pure fruit juices and milk-based drinks with no added sugar • exclusion for small operators	Not yet finalised but estimated at: • Main rate charge:18p/litre for drinks with 5–8g of sugar per 100ml • Higher rate charge: 24p/litre for drinks with more than 8g per 100ml
Mauritius Excise Tax on Soft Drinks: Introduced in 2013	• soft drinks based on sugar content • excludes bottled water, pure fruit or vegetable juice and dairy products.	3 cents per gram of sugar content
Hungary Energy and Soda Drinks: Introduced: 2011	<u>Soft Drinks</u> Tax applicable for sodas with more than 8g/100ml	Soft Drinks54 $0.02 per litre
	Energy Drinks a) Drinks with both Methylanthines more than 1mg/100ml and Taurine more	Energy Drinks 250 HUF per Litre

	than 100mg/100ml	
Products with high salt content	Salt Content Foods with salt more than 15mg/100ml	Salt content $0.85 per gram
Mexico Soft Drink and Junk Food tax: Introduced: January 2014	Non-Alcoholic Drinks with Added Sugar	Non-Alcoholic Drinks: 1 peso per litre; 9% of price
	Junk Food Calorie Rich Food with more than 275 calories/100g	Junk Food 8% of price
Finland Sugar tax: Introduced: January 2011 (historically also taxed) Abolish: 2017 Soft drinks will continue to be taxed after 2017.	Sugar tax: Tax on sweets, chocolate ice cream, soft drinks and other sugary products.	Sugar tax: € 0.95 / kg by weight for confectionery. € 0.11 / L of the product (e.g. ice cream). € 0.220 /L beverages with more than 0.5% sugar. € 0.11 / L for other non-alcoholic beverages.
Norway Introduced: 1981	Soda Tax Soda Drinks and concentrates	Soda Tax NOK 3.27/L for sodas NOK 19.92/L for concentrate (syrups) NOK 1.64/L for squash and syrups based on fruits, berries, vegetables (without added sugar) NOK 9.96/L for concentrate

		-syrup based on fruits, berries, vegetables. (without added sugar)
	Chocolates and Sugar Products	NOK 19.79/L per kg for chocolates and sugar products
	Tax on Sugar	NOK 7.66/kg for sugar
France Introduced: January 2012	Soft drink tax: Drinks containing added sugar or sweetener as well as fruit drinks and flavoured waters.	Soft drink tax: 2014: £0.059 per / L Energy drinks: £0.79 per / L Tax burden of about 6% of the average price of sodas
Ireland Excise tax on soft drinks: Implemented 1916 – 1992	• Sugar and artificially sweetened beverages • Aerated waters and any beverages (including syrups)	IRP 0.29 / gallon (in 1992)
Denmark Saturated fat tax: Introduced: October 2011 Abolished: January 2013	Saturated fat: Tax on foods that are high in saturated fat (2.3 % threshold).	Saturated fat: DDK 16 (£1.78) / per kilogram of saturated fat on products which contain > 2.3g/100 g
Soft drink tax: Introduced: 1930s Abolished: 1 January 2014	Sugar tax: Confectionary (chocolate and candy), ice cream and soft drinks)	Sugar tax: Differential (DDK 14.20 & 17.75) rates for goods which content of added sugar are more or less than 0.5g pr. 100g.

		Soft drink tax: DDK 1.64 (€0.15 to €0.22) per litre of sugar sweetened soft drink.

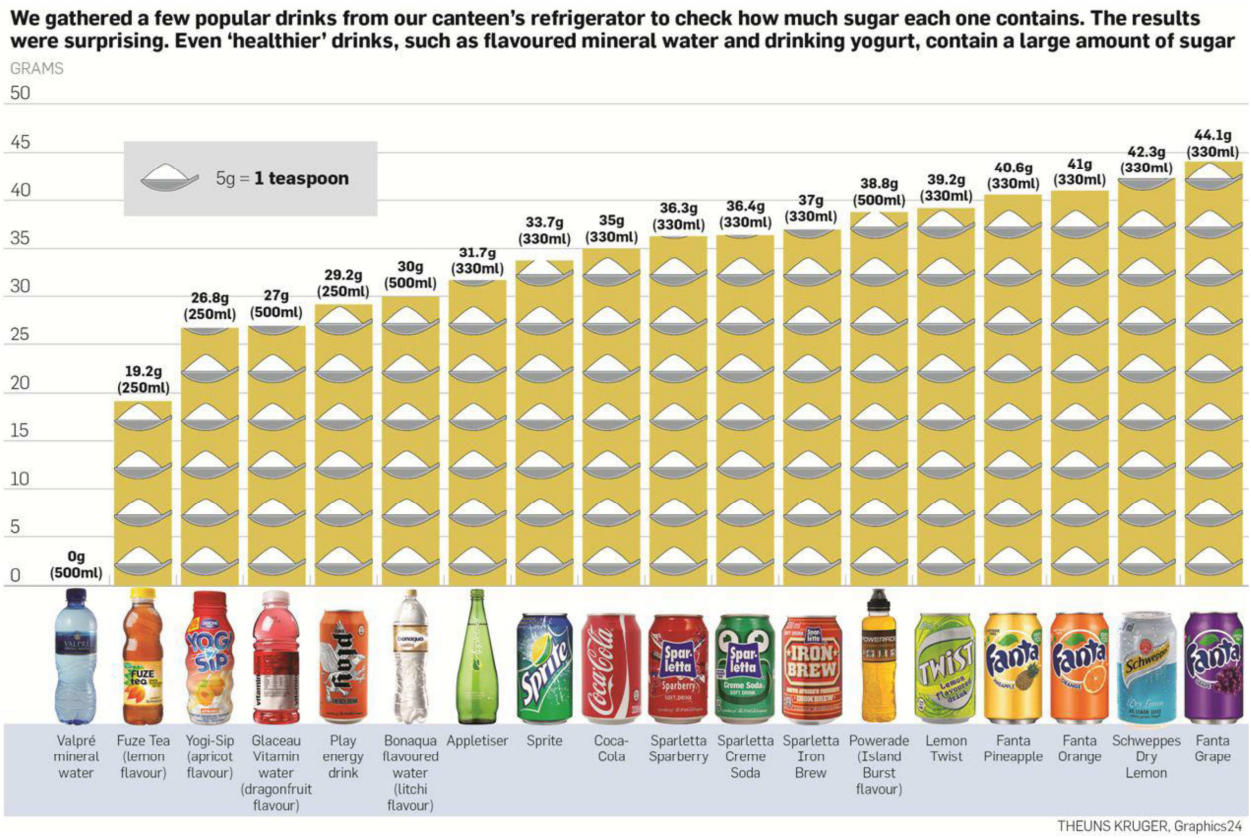
SOURCE: NATIONAL TREASURY

ANNEXURE III: IMPACT OF SSB TAXES	
Finland (soft drinks)	• Price increased by 7.3% in 2011, by 7.3% in 2012, and by 2.7% in 2013, while the tax was expected to increase the price by 1.5% and 0.9% in 2011 and 2012, respectively. • Price increases led to a reduction in demand by 0.7% in 2011, by 3.1% in 2012 and by 0.9% in 2013. • Almost no change in the trends in competitiveness indicators. Some effects on labour productivity and employment in the industry linked to reduction in demand. Difficult to separate the impact of taxes on alcoholic and non-alcoholic drinks.
France (regular Cola)	• Price increased by 5% in 2012 and by 3.1% in 2013 while the tax itself was expected to increase price by 4.5% in 2012. Increase in the price in 2013 was very large given tax rate was only adjusted to inflation. • Demand reduced by 3.3% in 2012 and 3.4% in 2013. • Retail margins increase for diet cola, no change for regular cola. • Based on available data no changes in the indicators for competitiveness were noted.
Hungary (Cola)	• Price increased by 3.4% in 2011, 1.2% in 2012 and 0.7% in 2013 while tax alone was expected to raise price by 3.1% in 2011. • Demand reduced by 2.7% in 2011, by 7.5% in 2012 and by 6% in 2013. • Some evidence of substitution towards non-branded products. • Increases in competitiveness indicators but unclear how much, if any, can be contributed to the tax. • Retailer margins increased.
Mexico	• Tax on sugary drinks reduced consumption by 10% and

	increased the consumption of untaxed alternatives (milk and bottled water) by 7%. Consumer survey of 1,500 Mexicans reported that more than half of the sample reduced the consumption of sugary drinks since the tax was introduced. • In the first half of 2014, the biggest soft-drink bottler reported 6.4% reduction in sales while in the second half of 2014 the reduction slowed down to 0.3%. • Soft drink bottlers have registered a general fall in the volume of sales in North America, ranging from 0.1% to 3% across different companies (76). • The value of the soda market in Mexico is estimated to increase by 9.6% by 2019 from its current value of $15,935m.

SOURCE: NATIONAL TREASURY

ANNEXURE IV: SSBS SUGAR CONTENT



SOURCE: NATIONAL TREASURY

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