- Final mini-dissertation -

A CONVERSATION ON THE USE OF TAXATION TO CHANGE UNWANTED SOCIAL BEHAVIOUR

by

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Table 1: List of Abbreviations

Abbreviations	**Meaning**
Carbon Tax Act	Carbon Tax Act No.15 of 2019
CO2e	Carbon Dioxide Equivalent
CPI	Consumer Price Inflation
Customs and Excise Act	Customs and Excise Act No. 91 of 1964
DALY's	Disability-adjusted life years
DEA	Department of Environmental Affairs
DOH	Department of Health
DTC	Davis Tax Committee
et al.	And others
GHG	Greenhouse Gas
HDI	Human Development Index
HED	Heavy episodic drinking
HPL	Health Promotion Levy
LMIC's	Low- to Middle-Income Countries
NCCR	National Climate Change Response
NCD's	Non-communicable diseases
NIDS	National Income Dynamics Study
OECD	Organisation for Economic Co-operation and Development
RDP	Reconstruction and Development Programme
SACU	South African Customs Union
SARS	South African Revenue Service
SSB's	Sugar-sweetened beverages
TISA	Tobacco Institute of Southern Africa
WHO	World Health Organisation

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CHAPTER 1

1 CHAPTER 1 – INTRODUCTION AND PROJECT OVERVIEW

1.1 RATIONALE / MOTIVATION FOR THE RESEARCH

The South African government has recently introduced tax reforms that are aimed at influencing social behaviour such as sugar tax which is levied on sugar-sweetened beverages, carbon tax levied on carbon emissions, tax-free savings and increased the available tax deduction on retirement savings in order to encourage long term savings. Furthermore, the government hikes sin taxes on an annual basis in its efforts to discourage the use of tobacco and alcohol products. Various environmental taxes such as the fuel levy, as well as the plastic bag levy, have also been implemented in order to curb the effect of harmful behaviour on the environment.

A 2018 report on tax policy reforms, adopted by the Organisation for Economic Co-operation and Development (OECD) member countries, shows a growing trend where tax policies are designed to stimulate economic growth, minimise inequality gaps and influence a change in behaviour (OECD, 2018). Taxation has a number of objectives with its primary objective being the collection of revenue required by governments for public expenditure. According to the OECD (2017:2) “tax policies raise revenues needed to support public investment and programmes that will help foster growth and inclusiveness”. The OECD also acknowledges that tax policies affect taxpayer’s behaviour which ultimately has significant implications on economic growth and equity.

The existence of taxation dates back thousands of years and its development has been the subject of many literature reviews. Found at the forefront of the fundamental principles of taxation as extracted by Du Preez (2016:74), is Adam Smith’s four canons: Equity, Certainty, Convenience of Payment and Economy (Smith [1776]:2000). The Davis Tax Committee (DTC) (2015:15) articulated Equity, Simplicity, Efficiency, Transparency, Certainty, and Tax Buoyancy as guiding principles through which the South African tax system would be assessed. The DTC also recognised that one of the objectives of a tax

system is that it should "influence behavioural changes by encouraging certain actions (e.g. savings) and discouraging others (e.g. smoking)". There are no definitive principles compulsory for the formulation of a tax ~~policy,~~policy; however, the increased trend in the use of fiscal measures to influence social behaviour is more prevalent in modern taxation principles (Du Preez, 2016:84).

There is sometimes a compelling case for a tax system to discriminate between different activities for tax purposes as "people left to their own devices can behave in a harmful manner to themselves and others" (Mirrlees, Adam, Besley, Blundell, Bond, Chote, Gammie, Johnson, Myles & Poterba, 2011:333). In the pursuit to construct fundamental principles of taxation, Du Preez (2016:181) recommended six fundamental principles of taxation. The sixth fundamental principle from this study proposes the use of taxation to "Change Unwanted Social Behaviour"[1]. According to Du Preez (2016:200), Change Unwanted Social Behaviour as a fundamental principle of taxation is fairly new, however, its importance should not be taken for granted as more and more people in this day and age need to be incentivised to do the right thing.

Mirrlees *et al.* (2011) endorse the increase of prices of harmful activities as an efficient way to discourage those activities stating that carbon emissions are one of the major environmental problems that should be priced. The DTC (2015:12 & 13) acknowledges that one of the objectives to be pursued by a tax system includes the correction of market failures, stating that this can be achieved by imposing a tax on "production or consumption to internalise negative externalities, e.g. pollution or consumption of harmful products".

Du Preez (2016:97) acknowledges that "manipulating social behaviour through taxes has not proven to be very successful, as people seem to turn to the black market (for example, to buy cigarettes) where expensive products can be obtained at a lower price". Attaining social behaviour change through a tax policy may be a mammoth undertaking given the uncertain correlation between the increase in price and the behavioural drivers. According to Frecknall-Hughes (2014:5) "tax in relation to social behaviour is a difficult issue, as attitudes change over time". Generally, there is a public scepticism concerning the

[1] When Change Unwanted Social Behaviour is in upper case it refers to the fundamental principle of taxation as proposed by Du Preez (2016), when in lower case it refers to the principle in general.

government's real motives for imposing behavioural taxes, given that additional revenue collected from those taxes are not strictly ring-fenced to the respective social costs. Additional analysis is required in order to explore the validity of Change Unwanted Social Behaviour as a fundamental principle of taxation and furthermore to analyse any progress made in changing unwanted social behaviour.

1.2 PROBLEM STATEMENT

Change Unwanted Social Behaviour is formulated on the assumption that if a product or service is taxed, consumers will consume less of it and certain social benefits will be experienced. If it is a question of price elasticity, it needs to be analysed for the various social taxes introduced in South Africa as to whether they have been adequately designed to effectively change social behaviour. Government contends that these taxes are aimed at addressing unwanted social behaviour and not to raise additional revenue. Therefore, the reasons why government introduced certain behavioural taxes in South Africa and how these revenues have been applied in respect of the targeted social behaviour, needs to be understood.

While Change Unwanted Social Behaviour may be conceptually recognised and incorporated into modern day tax policies, the question remains as to whether it should be considered a fundamental principle of taxation or whether it is a mere sub-principle fulfilling a secondary role. Although, on the one end it appears that there is a global consensus to use fiscal measures to drive social behaviour, there is a need to assess to what extent a change of unwanted social behaviour can be achieved through taxation.

1.3 RESEARCH QUESTION

What is the impact of the fundamental principle: Change Unwanted Social Behaviour on the social behaviour of the taxpayer and is this fundamental principle of taxation a valid principle of taxation?

1.4 RESEARCH OBJECTIVES

The objectives that will be prevalent in this study are:

- To analyse the history, theory, objective and design of various social taxes in South Africa including: sin taxes on tobacco and alcohol, sugar tax and carbon tax.
- To analyse from a practical perspective the impact of taxation on consumption of harmful products within various industries, and
- To analyse how government has applied the additional revenue.

1.5 STRUCTURE OF MINI-DISSERTATION

1.5.1 Chapter 1 – Introduction

Chapter 1 provides an introduction and background to the research topic and outlines the rationale for this study. It highlights the unanswered questions regarding the research topic and sets out the objectives the study strives to achieve.

1.5.2 Chapter 2 – Method for conducting the systematic review

Chapter 2 provides an overview of the research methodology and research design and briefly sets out the application of each research design element to this study. It further outlines the data identification and the analysis process followed.

1.5.3 Chapter 3 – Theoretical review of change unwanted social behaviour in South Africa

Chapter 3 provides an introduction to sin taxes on cigarettes and alcohol, sugar tax and carbon tax. It includes a theoretical review of the background of these tax policies, reasons provided by government for their adoption and an analysis of the design elements of each tax policy.

1.5.4 Chapter 4 – Practical application of change unwanted social behaviour in South Africa

Chapter 4 provides an extended literature review of the practical implementation of these tax policies and their impact on social behaviour in the respective industries.

1.5.5 Chapter 5 – Conclusion

Chapter 5 provides a summary of findings and details how the research objectives were addressed by the study. Chapter 5 also briefly provides recommendations for future studies and the limitations of the study. The chapter concludes the study with closing remarks.

CHAPTER 2

2 CHAPTER 2 – METHOD FOR CONDUCTING THE SYSTEMATIC REVIEW

2.1 INTRODUCTION

The study is qualitative in nature as it will use, to a large extent, non-numeric information. A systematic review will be adopted to systematically review existing literature on carbon tax, sugar tax, sin taxes on alcohol and cigarettes as well as various environmental taxes introduced in order to change social behaviour.

The study is theoretic as it aims to explore the concept of "Change Unwanted Social Behaviour" as a fundamental principle of taxation by analysing the government's reasons for introducing these taxes and the review of available literature on the effectiveness of these taxes to influence the targeted social behaviour. The study is classified as an exploratory study; as the use of taxation to influence social behaviour is a fairly new concept and more information is needed to better understand its effectiveness.

2.2 RESEARCH DESIGN ELEMENTS

2.2.1 Philosophical stance

An interpretivism philosophical stance will be adopted. This philosophical stance follows that research should be conducted amongst people as social actors as opposed to objects. According to McKerchar (2010:75), interpretivism gives insight into the social reality that is based on the subjective interpretation of the researcher. The underlying assumption of interpretivism is that it allows for the research to be conducted with consideration given to the subjects of the study (McKerchar, 2010:75). Unlike other philosophical paradigms, interpretivism will allow this study to be conducted with regard to the analysis of social behaviour of the society as a subject within the context of tax systems. Change Unwanted Social Behaviour as a proposed fundamental principle of taxation will be studied having regard to people's perceptions of tax policies seeking to

influence their behaviour. Furthermore, interpretivism philosophy will allow for the use of insights from behavioural economics when exploring the theories underling social behaviour.

2.2.2 Nature of the study

The nature of the study will be exploratory. Exploratory research can be applied where there are limited facts known about a phenomenon and more facts are required to develop a theoretical framework. An exploratory research is not performed to provide conclusive evidence but rather to give better understanding of the nature of the problem being explored (Research Methodology, 2016). It is widely accepted that a tax system should be able to steer societal behaviour in the desired direction but more facts are needed to understand whether this concept can be construed as a fundamental principle of taxation and moreover to explore whether tax policies have an effect on unwanted social behaviour.

2.2.3 Method of reasoning

An inductive method of reasoning will be followed. Inductive reasoning happens when theory is formulated from research findings. According to McKerchar (2010:75), an interpretivism study will follow an inductive reasoning and is not expected to give definitive explanations on causal links that can be observed. As this study will adopt an interpretivism philosophy, it is fitting to follow an inductive reasoning method. This study aims to explore the theory underlying social behaviour changes from a taxation perspective and formulate a meaning for this concept through a systematic review of literature. The analysis of social behaviour changes through the fundamental principles of taxation will not be executed to provide hard and fast explanations about any causal links between the principles. The analysis will rather be theoretical, identifying trade-offs arising between the principles.

2.2.4 Time horizon

Time horizon of a study can either be cross-sectional or longitudinal. Cross-sectional study is performed to a particular phenomenon at a specific point in time, while a longitudinal study is carried out over a period of time (University of Pretoria, 2019:39). This study is classified as a cross-sectional study as it is not necessary to make any observable

comparisons over a period of time. Current literature will be reviewed as it stands at this point in time in order to answer the research questions.

2.2.5 Unit of analysis

Unit of analysis refers to the "what" or "who" that is being studied, guided by the research question. The unit of analysis is helpful for the determination of the scope of the research study. Broadly, a unit of analysis may be classified as an empirical or non-empirical study. A non-empirical study entails the analysis of scientific concepts, theories and models. As discussed, this study will entail a theoretical exploration of social behaviour changes and an analysis of fundamental principles of taxation and accordingly a non-empirical research approach will be the most suitable. The unit of analysis will thus be the theoretical meaning of social behaviour changes as a fundamental tax principle, as well as the trade-offs being explored between fundamental principles of taxation.

2.2.6 Nature of the data

Data used in this study will be of a secondary nature. Secondary data refers to data that already exists such as books, reports, statistical data and so forth. Studies performed using secondary data can be conducted much quicker than those using primary data. The data which is used in this study will mainly consist of existing reliable literature available on the research area.

2.3 SYSTEMATIC REVIEW

The study will follow a systematic literature review which is defined as "the comprehensive study and interpretation of literature that addresses a specific topic" (Aveyard, 2014). A systematic literature review is regarded by Kitchenham (2004:3) as "a means of identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest. Individual studies contributing to a systematic review are called primary studies; a systematic review is a form a secondary study".

According to Kitchenham (2004), a systematic literature review helps with the identification of knowledge that is already available on a topic and helps to further identify any

knowledge gaps that may exist on the subject. By following a literature review, background is obtained which better positions the rationale for further research required in order to add to the body of knowledge regarding the topic. As explained by Kitchenham (2004:13), systematic reviews serve the purpose of researchers collecting and summarising information in an unbiased manner. By following a systematic review, the researcher can "draw more general conclusions about some phenomenon than is possible from individual studies, or may be undertaken as a prelude to further research activities" (Kitchenham 2004:13).

Fundamental principles of taxation have existed for as long as taxation itself, which is thousands of years. This topic has thus been studied by many prestigious scholars and by following a literature review methodology, existing literature can be reviewed to gain the understanding of the topic from its historic origins, as well as recent developments. Furthermore, gaps in the body of knowledge can be identified to guide the purpose of this study.

2.4 IDENTIFICATION AND RECORDING OF ACADEMIC LITERATURE

2.4.1 Databases and information sources

The data collection process was divided into two phases to make it possible to obtain literature relevant for Chapter 3 and Chapter 4 respectively. The literature in Chapter 3 seeks to address the first objective of the study which relates to the theory of Change Unwanted Social Behaviour from a South African perspective, while Chapter 4 seeks to analyse the practical impact of taxation on social behaviour.

The study focuses on tobacco and alcohol sin taxes, sugar tax and carbon tax as implemented in South Africa. Literature articles for Chapter 3 were obtained from government websites as well as Google Scholar. The National Treasury website was used to obtain publications such as policy documents, explanatory memorandums, public consultation commentary, draft bills and official budget speech documents. To a limited extent, professional organisations were consulted to obtain a simplified interpretation of the policy documents.

Chapter 4 aims to analyse the impact of taxation on unwanted social behaviour. Literature articles were obtained from Google Scholar and the World Health Organisation (WHO). In some cases, Google Scholar searches linked to Sabinet, Wiley, Science Direct and Ebscohost, where a range of relevant academic articles were obtained.

The snowball method was applied where the same author was quoted in various articles. In these instances, the bibliographies were consulted to locate other relevant documents and articles.

2.4.2 Inclusion – and exclusion criteria

All searches were limited to articles written from a South African perspective, except where the search was performed on the WHO website. Specific health related topics with a global perspective relevant to South Africa were included. Searches performed on the National treasury website excluded media statement publications. Search results from Google Scholar were included, or excluded, based on their relevance by screening the titles.

2.4.3 Keywords

The following terms were applied as keywords or phrases for the database searches: The searches were performed using the following as keywords:

- Carbon Tax;
- Carbon Emissions;
- Sugar Tax;
- Health Promotion Levy (HPL);
- Sin Tax on Alcohol;
- Sin Tax on Cigarettes.

The rest of the articles and documents were obtained applying the snowball method.

2.4.4 Method of analysis

Chapter 3 followed a thematic data analysis approach which required a systematic coding of the data, based on pre-determined elements that are relevant to the research question.

The elements used for coding the data analysed include:

- Background;

- Reasons for introduction of the tax;
- Objective of the tax;
- Tax base and tax rate;
- Tax-free allowances or exemptions;
- Revenue recycling.

To a limited extent, quantitative statistics mainly obtained from the WHO were analysed to better understand the impact of taxation on the consumption of harmful products. Chapter 4 focuses on the analysis of price elasticities, consumption patterns and behavioural outcomes.

2.4.5 Summary of literature to be analysed

Table 4 below and Table 5 on page 12 summarise the data collection process followed to obtain articles to be analysed in Chapter 3 and Chapter 4.

Table 4: Literature to be analysed in Chapter 3

Chapter 3 Data Collection						
Databases	**Searches performed**	**Limitations**	**Search results**	**Inclusion**	**Exclusion**	**Analysed**
National Treasury Website	"Carbon tax"	None	100	Top 10 results	Media statements (5)	5
National Treasury Website	"Sugar sweetened beverage tax"	None	100	Top 20 results	Media statements (12)	8
National Treasury Website	"Alcohol tax"	None	100	Top 10 results	Media statements (9)	1
Google Search	"Alcohol tax policy"	South Africa	1300	Top 10 results	Excluded irrelevant based on title (5)	5
Google Search	"Smoking in South Africa and taxation"	South Africa	23100	Top 10 results	Excluded irrelevant based on title (6)	4
Obtained through Snow-balling						4
Total						**27**

Table 5: Literature to be analysed in Chapter 4

Chapter 4 Data Collection						
Databases	**Searches performed**	**Limitations**	**Search results**	**Inclusion**	**Exclusion**	**Analysed**
WHO (Health topics)	Tobacco	2010 to date		Only specific to Tobacco		6
	Alcohol	2010 to date		Only specific to Alcohol		
Google Scholar	Cigarettes taxes and smuggling in "South Africa"	South Africa	1			1
Google scholar	Effectiveness of sugar tax in "South Africa"	South Africa	34 200	Top 10 results	Excluded irrelevant based on title (8)	2
Obtained through snowballing						6
Total						**15**

Combined Total: Table 4 & 5	**42**

Overall 42 articles were analysed and formed part of this study. Table 4, on page 11, indicates that articles analysed in Chapter 3 were predominantly obtained from the National Treasury's website. The articles obtained from the National Treasury lead to additional articles which were obtained through snowballing. The search for sin taxes on the National Treasury's website returned limited results and therefore the search was done on Google Scholar in order to obtain more relevant articles. The main limitation applied was the country perspective. Only top 10 or top 20 results were screened for relevance. Media publications and irrelevant articles were excluded resulting in 27 articles to be analysed for Chapter 3.

Table 5 indicates that insights from the WHO, which were analysed in Chapter 4, would be drawn on in order to provide global perspective that is also applicable to South Africa. The WHO articles were limited to the year 2010 in order to exclude data and trends that are too old. The Google Scholar searches were limited to articles written from a South African perspective and most were excluded based on their irrelevance. Ultimately 15 articles were found to be suitable for the analysis to be performed in Chapter 4.

CHAPTER 3

3 CHAPTER 3 – THEORETICAL REVIEW OF CHANGE UNWANTED SOCIAL BEHAVIOUR IN SOUTH AFRICA

3.1 INTRODUCTION

The aim of Chapter 3 is to explore Change Unwanted Social Behaviour as a fundamental principle of taxation. This chapter seeks to review the government's rationale for implementing sin taxes on cigarettes and alcohol, sugar tax on sugar-sweetened beverages and carbon tax on carbon emissions. It includes a theoretical review on the background of these tax policies, reasons provided by government for their implementation and an analysis of the design elements of each tax policy.

3.2 CHANGE UNWANTED SOCIAL BEHAVIOUR AS A FUNDAMENTAL PRINCIPLE OF TAXATION

The study performed by Du Preez (2016) sought to construct fundamental principles of taxation and proposed amongst others, Change Unwanted Social Behaviour as a fundamental principle of taxation. This multimethod study found that Change Unwanted Social Behaviour emerged only in the Modern Age (Du Preez, 2016:200). It was noted that this fundamental principle was only quoted by first world participants indicating that only in first world countries taxation may be perceived to influence behaviour (Du Preez, 2016:169). Participants in second and third world countries did not quote change of social behaviour through taxation. From the six fundamental principles of taxation proposed by Du Preez (2016), Change Unwanted Social Behaviour is ranked last. Although, it is acknowledged that Change Unwanted Social Behaviour should not be ignored in this modern age, it is questionable as to whether it is a fundamental principle of taxation or whether it has a secondary role. According to Du Preez (2016:201) "the foundation of a tax system should be underpinned by undisputed tax moral(s) and a general belief in an ideal tax system".

3.3 SIN TAXES ON CIGARETTES AND ALCOHOL PRODUCTS

3.3.1 Background

Similar to most countries in the world, South Africa levies excise duties on alcohol and tobacco products. The informal term 'sin taxes' used to refer to these excise duties, encapsulates the general consensus that the consumption of alcohol and tobacco products cause harmful effects on individuals and the society at large. Hence, it has become justifiable for governments to use sin taxes both as an instrument to raise general tax revenue and as a means to influence social behaviour (National Treasury, 2014). Post 1994, the new South African government was faced with an enormous task of rebuilding the nation, especially for the majority of its people that had been oppressed by the preceding government (Van Walbeek, 2006).

The government therefore developed the Reconstruction and Development Programme (RDP) setting out its strategic goals to tackle, amongst others, mental and psychological health problems having recognised that "millions of South Africans abuse alcohol, tobacco, cannabis (dagga), solvents like petrol and glue, and other harder drugs" (African National Congress, 1994:51). The government committed to taking relevant action to prevent the surge of substance abuse. Part of the action, as set out in the RDP, was to develop comprehensive strategies to change behaviour which included a price increase on tobacco and alcohol products (African National Congress, 1994:51). In 1994, tobacco control was high on the government's public health agenda and in the first budget speech the Minister of Finance, Trevor Manuel, announced the intention to increase sin tax on tobacco products to 50% of the retail price over a phased period (Van Walbeek, 2006:110).

3.3.2 Reasons for introducing tobacco and alcohol sin taxes

Sin tax on alcohol is used to raise revenue by the government. The National Treasury (2014) indicates that in the 2009/2010 fiscal year, more than R10 billion was allocated by national government and close to R7 billion allocated by provincial governments to expenditure aimed at addressing alcohol abuse. Revenue collected on excise duties on alcohol, VAT on alcohol sales and liquor licence was just under R17 billion with a short fall of R890 million which was funded by the general tax revenue (National Treasury, 2014). Through the levy of sin taxes, the government attempts to minimise the negative impact of

alcohol abuse on society and internalise these costs by “adjusting alcoholic beverage prices, and to re-assign these costs to the relevant alcohol producers and consumers” (National Treasury, 2014:9).

Tobacco consumption is a growing threat to global public health (WHO, 2015). According to the WHO (2015) tobacco-related illnesses pose the biggest public health threats ever faced around the world. Although preventable, tobacco use is the cause of many non-communicable diseases (NCDs) such as cancer, heart diseases, stroke, chronic respiratory diseases and vascular diseases (WHO, 2015). A study performed in 1992 indicated at that time, approximately 2.5 million people worldwide died due to tobacco related illnesses every year (Yach, McIntyre & Saloojee, 1992). The number of tobacco related deaths worldwide, during 2016 alone, grew to 7.1 million (J. Drope, Schluger, Cahn, Drope, Hamill, Islami, Liber, Nargis & Stoklosa, 2018). Over 6.3 million of the deaths were the result of cigarette smoking and approximately 800 000 deaths were due to second-hand cigarette smoke (Drope *et al*., 2018:28). If the current trend continues, it is estimated that by 2030 the death toll will increase to 8 million people per year (WHO, 2015).

Drope *et al*. (2018) estimate the economic cost of smoking in South Africa to be as high as R59 billion including direct healthcare costs as well as indirect costs relating to lost productivity due to early deaths. The WHO (2015) introduced a suite of effective interventions in order to curb the use of tobacco and one of these strategies is to raise taxes on tobacco. Raising taxes on tobacco is endorsed as one of the most cost-effective means “to reduce consumption of products that kill, while also generating substantial revenue” (WHO, 2015:2). In South Africa, the tax burden on the price of cigarettes was increased from 32% to 52% between 1993 and 2009 (WHO, 2015:2).

Currently, sin taxes on cigarette products constitute 40.12% of the retail price (Drope *et al.,* 2018). In most countries, tobacco tax revenues serve as a sustainable source of revenue to fund public healthcare (WHO, 2015). Yach *et al.* (1992) found that although there were some improvements on mortality rates where the government implemented preventative strategies, these gains were outweighed by the increased health costs incurred in treating

conditions such as ischaemic heart diseases and lung cancer, which were predominantly caused by lifestyles associated with alcohol and tobacco consumption.

Since the 2002 budget speech, the government implemented above inflation sin tax on alcohol beverages aiming to reach a tax burden of 35% and 48% on the retail price of beer and spirits respectively, citing that it “is the right thing to do” (National Treasury, 2003:20). Historically, alcohol has played a complex role in the South African society which has introduced various social challenges (Parry, 2005). Some of these challenges experienced within South Africa include violence, road accidents and road fatalities, homicide and unintentional deaths (Ramsoomar & Morojele, 2012). A study by the WHO (2018a), indicates that South Africa’s heavy drinking prevalence is average when compared to other countries. What is more of a concern in South Africa is the level of excessive drinking. South Africa has one of the highest levels of heavy drinking in the world with approximately 7% of men and 9% of women drinking more than three drinks a day or at least five drinks a week on an occasion (National Treasury, 2014).

Consuming high volumes of alcohol regularly is harmful and has been identified as a cause of various chronic alcohol-related diseases such as cirrhosis of the liver (Ramsoomar & Morojele, 2012). Alcohol abuse leads to social costs that are borne by society at large and especially those who do not engage in alcohol abuse (National Treasury, 2014). The lack of alcohol prices to cater for these social costs creates a market failure as social costs arising from harmful alcohol consumption are not internalised (National Treasury, 2014).

3.3.3 Objectives

Other than raising revenue, additional taxes on tobacco and alcoholic beverages seek to internalise the negative externalities associated with alcohol abuse and tobacco use such as, a significant increase in health costs, loss of productivity, domestic violence, road accidents and road fatalities. By so doing, these costs are transferred from the society at large to alcohol producers and consumers.

The government outlines two objectives to be accomplished through the levying of taxes on alcoholic beverages which are similar to tobacco taxes:

- “To ensure an optimal allocation of scarce resource which will lead to a more efficient and sustainable economic growth in the long term” (National Treasury, 2014:9).
- “To curb alcohol consumption through the price increases and by this means reduce alcohol external costs borne by society” (National Treasury, 2014:9).

The government acknowledges practical limitations on its ability to reach these objectives solely through the tax system. It recognises that the addictive nature of alcohol and tobacco may lead to unintended outcomes where consumers sacrifice meritorious goods to maintain more expensive alcohol and tobacco (National Treasury, 2014). It also recognises the risk of illicit trade and smuggling of alcohol and tobacco that arises as producers and consumers seek to avoid sin taxes (National Treasury, 2014). In this regard, the government accepts the need for a comprehensive approach which includes non-tax interventions to change unwanted social behaviour (National Treasury, 2014).

3.3.4 Tax base and tax rate

South Africa applies a specific excise tax regime on alcohol and tobacco (National Treasury, 2014). The alcohol sin tax generally follows international practice of taxing alcohol beverages with a high alcohol content at a higher rate (National Treasury, 2014). Table 6 on page 18, summarises specific excise duties per alcohol and tobacco type in 2019.

Table 6: **Specific excise duties 2019/20**

Product	Current excise duty rate	Proposed excise duty rate	Percentage change Nominal	Real
Malt beer	R95.03 / litre of absolute alcohol (161,56c / average 340ml can)	R102.07/ litre of absolute alcohol (173,51c / average 340ml can)	7.4	2.2
Traditional African beer	7,82c / litre	7,82c / litre	–	-5.2
Traditional African beer powder	34,70c / kg	34,70c / kg	–	-5.2
Unfortified wine	R3.91 / litre	R4.20 / litre	7.4	2.2
Fortified wine	R6.54 / litre	R7.03 / litre	7.4	2.2
Sparkling wine	R12.43 / litre	R13.55 / litre	9.0	3.8
Ciders and alcoholic fruit beverages	R95.03 / litre of absolute alcohol (161,56c / average 340ml can)	R102.07/ litre of absolute alcohol (173,51c / average 340ml can)	7.4	2.2
Spirits	R190.08 / litre of absolute alcohol (R61.30 / 750ml bottle)	R204.15 / litre of absolute alcohol (R65.84 / 750ml bottle)	7.4	2.2
Cigarettes	R15.52 / 20 cigarettes	R16.66 / 20 cigarettes	7.4	2.2
Cigarette tobacco	R17.44 / 50g	R18.73 / 50g	7.4	2.2
Pipe tobacco	R4.94 / 25g	R5.39 / 25g	9.0	3.8
Cigars	R82.31 / 23g	R89.72 / 23g	9.0	3.8

Source: National Treasury (2019)

The 2019/20 budget saw the above inflation increase on alcohol and tobacco sin taxes ranging between 7.4% and 9%. The target tax burden on alcohol products is 11%, 23% and 36% for wine, beer and spirits respectively. The 2019/20 increases on alcohol will slightly exceed the targeted tax burden on alcohol.

The target tax burden for tobacco products is 40% of the retail price of the most popular brand within each product category (National Treasury, 2019). In high-income countries, the tax burden on tobacco is as high as 65% of the retail price (WHO, 2015:3).

3.3.5 Tax-free allowances and exemptions

There are no tax exemptions, or tax-free allowances, on alcohol and tobacco sin taxes. The only exception is that wine receives preferential treatment because of the socio-economic factors, agriculture and tourism affecting the industry (National Treasury, 2014).

3.3.6 Revenue recycling

The government does not follow a strict revenue-recycling process (ring-fencing) (National Treasury, 2014). Revenue collected on alcohol and tobacco related taxes forms part of the general tax revenue.

3.4 SUGAR TAX

3.4.1 Background

South Africa is the first African country to introduce the HPL on sugar-sweetened beverages, which is colloquially known as sugar tax[2]. Sugar tax was promulgated on 1 April 2018 through the Customs and Excise Act No. 91 of 1964 (Customs and Excise Act). Through sugar tax, the South African government strives to reduce the excessive consumption of sugar and by this means addresses the prevalence of obesity and NCD's including heart diseases, type 2 diabetes and various types of cancer (National Treasury, 2016:2). The introduction of sugar tax was first announced in Parliament by the Minister of Finance, Pravin Gordhan, in his 2016 Budget speech in support of the health strategies developed by the Department of Health (DOH) (National Treasury, 2016).

DOH's Strategic Plan for the Prevention and Control of NCD's 2013 – 2017 and the National Strategy for the Prevention and Control of Obesity 2015 – 2020 seeks to address obesity and the mortality risks resulting from NCD's. Subsequent to the announcement, the National Treasury (2016) published a policy paper on the taxation of sugar-sweetened beverages (SSB's) which set out the government's intention to make use of fiscal measures to address health issues and reduce obesity to 10% and the proposed design of a tax on SSB's. The policy paper was followed by a public consultation process and presentations by the National Treasury to the parliaments Standing Committee on Finance.

3.4.2 Reasons for introducing the tax

Globally, obesity is considered a growing epidemic and a major risk factor to mortality. It accounts for approximately 5% of early deaths and years of life lived in disability, even though it is a preventable condition (DOH, 2016:13). Alarmingly, a report by McKinsey

[2] Sugar tax will be used as a short-term plan to refer to the Health Promotion Levy on Sugary Beverages

Global Institute equates the global economic impact of obesity as a result of lost productivity to that of “smoking or armed violence, war and terrorism" and estimates its cost at 2.8% of the global GDP (DOH, 2016:13). According to the WHO, 20% of global health care expenditure is attributable to obesity related diseases (DOH, 2016:16). The DOH is also concerned about the divergence of state resources towards the treatment and prevention of obesity-related diseases as the state is overburdened with significant costs arising as a result of obesity.

A study performed by the McKinsey Global Institute indicates that in 2030 approximately 50% of the world’s adult population would be overweight if the current obesity trends persist (DOH, 2016:13). Obesity appears to be more prevalent in women and children than amongst men. The National Income Dynamics Study (NIDS) showed that a third of women older than 15 years of age were obese in comparison to 11% of men (DOH, 2016:13). The gender disparity in obesity will result in more women than men having a lower life expectancy, being more susceptible to diseases related to obesity and incurring higher medical costs (DOH, 2016). A high level of physical inactivity amongst children is also a concern (DOH, 2016). NIDS indicated that 29.3% of learners spend more than 3 hours watching television or playing computer games and more than 42.5% are not participating in sports (DOH, 2016:13). There was also a 7.5% increase in obesity amongst children 2 to 5 years of age (DOH, 2016:13).

Key drivers of obesity include insufficient physical activity, poor diet, lack of knowledge and poor early childhood feeding practices (DOH, 2016:17). Unhealthy diets are seen as a risk factor responsible for NCD’s. The excessive consumption of sugar was specifically identified as a major part of weight gain responsible for increased obesity (DOH, 2016:17). The DOH reported that obesity in South Africa worsened with the increased sale of SSB’s and high-calorie energy-dense foods (DOH, 2016). Moreover, the consumption of free sugars especially in the form of beverages is considered riskier as “liquid sugar is absorbed quickly by the body and sugary beverages have no nutritional value” (National Treasury, 2016:5). Liquid sugars are said to be consumed in higher volumes. According to the National Treasury (2016:5), they “do not provide the same feeling of fullness that solid food provides”.

The DOH relied on an economic model created by the OECD and the WHO to determine a cost-effective intervention in order to address obesity and risk factors giving rise to NCD's. The imposition of tax on unhealthy foods was considered the most cost-effective intervention when compared to food education, subsidies for healthy foods and physician counselling even though it would yield modest health impacts (DOH, 2016:20).

3.4.3 Objective of the tax

Through sugar tax, the government aims to influence the consumers purchasing decisions and the manufacturers' formulation of SSB's. Sugar tax will also cater as a tool to correct market failures by compensating for negative externalities caused by the consumption of selected goods such as sugar (National Treasury, 2016). It is believed that sugar tax will send a price signal that would discourage the consumption of SSB's and thereby promote health and contribute to the prevention of diseases. The government has submitted that its objective is not so much to raise additional revenue as it is to promote health (National Treasury, 2016).

The policy paper distinguishes the sugar tax from a tax that was levied on soft drinks and mineral water up until 1 April 2002. The tax on soft drinks and mineral water was based on volume, or per litre, and was challenged by industry lobby efforts. The tax rate ranged from 10.36 cents per litre in 1993/94, it peaked at 14.83 cents per litre in 1997/98 and decreased to 6 cents per litre in 2001/2002 before it was abolished (National Treasury, 2016:11). The National Treasury (2016:11) acknowledges that this tax was imposed primarily to raise revenue and was not linked to any health benefit objectives.

3.4.4 Tax base and tax rate

Any person who manufactures or imports any type of SSB, concentrate or preparation for the making of SSB's, will be liable for sugar tax. Currently 100% fruit and vegetable juice, unsweetened milk and unsweetened milk products are exempt from the levy (National Treasury & South African Revenue Service (SARS), 2016:6). The actual sugar content in SSB's, measured in grams, is considered the most "accurate proxy for harm caused by SSB's" and thus the levy is based on the sugar content in a beverage and not the volume (National Treasury, 2017:7).

The tax rate is set out in Schedule A of Part 7 of Customs and Excise Act at 2.1 cents per gram of sugar content that exceeds 4g per 100ml (Rates Bill, 2017). The 4g threshold is equivalent to a teaspoon of sugar (National Treasury, 2017:9), which serves to accommodate the intrinsic sugar content in any beverage. Initially, the tax rate was proposed at 20% or 2.29 cents per 100ml in order to be impactful on consumer and manufacturer behaviour (National Treasury, 2016). However, this rate was reduced to 2.1 cents per 100ml in order to limit negative socio-economic impacts such as the loss of jobs. The tax may be increased above inflation in the future (National Treasury, 2017:8). In the 2019/20 budget speech, the tax was increase by inflation to 2.21 cents per 100ml.

3.4.5 Tax-free allowances and exemptions

Schedule 1 of the Customs and Excise Act only lists the products that are taxed. Consequently, products that are not subject to sugar tax are excluded. The current legislation specifically excludes 100% fruit or vegetable juices from sugar tax. By virtue of not being listed in Section A of Part 7, unsweetened milk and unsweetened milk products are also exempt from sugar tax (National Treasury, 2017:6).

3.4.6 Revenue recycling

From the public consultation process, it emerged that the public had doubts about the government's true objectives for sugar tax, suggesting that "a portion of, or all revenues, should be used for health promotion initiatives. Earmarking will increase public confidence that the tax is for public health objectives" (National Treasury, 2017:11). This comment was partially accepted in so far as the government had predetermined priorities to support the DOH health promotion initiatives. However, no commitment was made by the National Treasury (2017:11) to earmark revenue from sugar tax to fund health initiatives addressing obesity and NCD's.

3.5 CARBON TAX

3.5.1 Background

The South African government has introduced carbon tax as part of its efforts to reduce Greenhouse Gas (GHG) emissions. On 26 May 2019, President Cyril Ramaphosa signed into law the Carbon Tax Act which was promulgated on 1 June 2019. As announced in the

2019 Budget Speech by Tito Mboweni, the Minister of Finance, “climate change is real” (National Treasury, 2019:16) and similarly the price of carbon emissions has now become a reality in the fragile South African economy. For multiple reasons, as discussed in the Discussion Paper for Public Comment, the National Treasury (2010) sets out a preference for a carbon tax policy over an emissions trading scheme. This preference was informed amongst others by an Australian paper on reducing GHG emissions in which it is suggested that “the introduction of a carbon price will change the relative prices of goods and services, making emission-intensive goods more expensive relative to those that are less emissions-intensive” (National Treasury, 2010:5). The government’s expectation is that carbon pricing will incentivise consumers and businesses to change their behaviour and thereby reduce carbon emissions.

3.5.2 Reasons for introducing the tax

The South African government acknowledges the sad reality and severe climate change effects currently facing the world (Department of Environmental Affairs (DEA), 2011). Climate change is caused by the “ongoing trend of changes in the earth’s general weather conditions as a result of an average rise in the temperature of the earth’s surface” (DEA, 2011:8). Studies show that the increased concentration of GHG’s is the primary source of rising average global temperatures (DEA, 2011). The emission of GHG’s comes from various natural resources and should naturally be reabsorbed by ecosystems (DEA, 2011:8). However, this is not the case as GHG’s are emitted more rapidly than they can be reabsorbed due to excessive human activities (DEA, 2011:8). Hence, the world is faced with natural disasters such as floods, droughts and extreme weather conditions (DEA, 2011:8).

Although Africa, as a continent, is the least contributor to concentrations of GHG’s in the atmosphere, it is vulnerable to the impacts of climate change (DEA, 2011:8). South Africa in particular is a relatively large contributor because of its energy-intensive economy, powered by fossil-fuels such as coal. South Africa is ranked the 12th largest emitter of carbon dioxide in the world (National Treasury, 2010). In 2004 South Africa’s energy use emissions accounted for more than 90% of total emissions and given that it is a developing country, it is expected that these emissions will increase (National Treasury, 2010:16). In

comparison to its peers, South Africa is considered to have relatively high per capita carbon emissions (DEA, 2011:26).

The South African government accepted an obligation to respond, alongside other countries, to the unsustainable climate change effects on the environment. The National Climate Change Response (NCCR) is the main policy framework to facilitate a smooth transition to a low carbon economy that will be a climate resilient economy (National Treasury, 2018) and sets out to "effectively manage inevitable climate change impacts through interventions" as well as "make a fair contribution to the global effort to stabilise GHG concentrations in the atmosphere" in a sustainable manner (DEA, 2011:11).

3.5.3 Objective of carbon tax

In a discussion paper on the carbon tax option, the National Treasury (2010) explained the role of carbon tax as a fiscal measure to internalise the costs associated with environmental pollution. The National Treasury (2010:58) argues that "unless businesses and individuals bear the full responsibility for their consumption and production decisions, the level of carbon pollution will remain too high". From an economic perspective, environmental resources that are freely accessible and can be used in unlimited quantities are categorised as "public goods" (DEA, 2011). Economic activity resulting in GHG emissions and climate resulting in negative effects on the environment impose external damage costs also known as externalities on the society at large. Usually the cost of these external damages is not reflected in the price of goods and services (DEA, 2011). This pricing defect is perceived as a market failure, which according to the DTC (2015) needs to be corrected by the tax system.

The carbon pricing policy adopted in the NCCR White Paper therefore seeks to impose a price on the excessive level of GHG emissions to account for the external damage cost thus, giving effect to the "Polluter Pays Principle" (National Treasury, 2018:3). This principle means "those responsible for harming the environment must pay the costs of remedying pollution and environmental degradation and supporting any consequent adaptive response that may be required" (DEA, 2011:12). Carbon tax therefore aims to place a limit in the form of a price on emissions and is targeted to "stimulate behaviour changes amongst producers and consumers in favour of less energy intensive, lower-

carbon emitting alternatives" (DEA, 2011:40). It is also the government's intention to fast track the uptake of energy efficient measures and innovative technology that is environmentally friendly (DEA, 2011).

3.5.4 Tax base and tax rate

Entities that conduct activities in South Africa resulting in GHG emissions in excess of the respective threshold, will be liable for carbon tax. The most common threshold for carbon tax liability, as set out in Schedule 2 of the Carbon Tax Act is 10 Mega Watts installed thermal capacity (National Treasury, 2018). The tax is levied at R120 per tonne of carbon dioxide equivalent (CO2e) for emissions above the tax-free threshold provided for in the Act. Taking into account all the available tax-free allowances, a taxpayer may get between 60% and 95% in tax-free allowances resulting in an effective tax rate ranging from R6 to R48 per tonne CO2e (National Treasury, 2018). Carbon tax on fuel will be included in the Fuel Levy at 9 cents per litre of petrol and 10 cents per litre of diesel from 5 June 2019 (National Treasury, 2018).

The carbon tax on emissions caused by the use of liquid fuels, mostly petrol and diesel, will be included in the fuel tax regime (National Treasury, 2018). All sectors and activities will be subject to carbon tax with exception to the agriculture forestry and other land use and waste sectors (National Treasury, 2018). These sectors will be exempt in the first phase because of difficulties experienced in measuring emission in these sectors (National Treasury, 2018).

The carbon tax design follows principles articulated in the NCCR. To cater for a "smooth transition to a low-carbon economy" the Carbon Tax Act makes provision for the tax to be introduced in a phased or gradual manner (National Treasury, 2018). This phased approach was adopted in order to take cognisance of the various developmental challenges unique to South Africa. The first phase commenced on 1 June 2019 and will continue until 31 December 2022 and the second phase is set to start from 2023 to 2030 (National Treasury, 2018). In the first phase, a modest carbon tax rate of R120 per tonne CO2e is imposed to send a price signal to producers and consumers. The initial tax rate will be increased annually by Consumer Price Inflation (CPI) plus 2% in the first phase and thereafter annually by CPI (National Treasury, 2018).

3.5.5 Tax-free allowances and exemptions

Transitional tax-free allowances are provided which include:

- 60% basic tax-free allowance;
- an additional 10% for process emissions;
- an additional 10% for fugitive emissions;
- a variable10% for trade-exposed sectors;
- a maximum of 5% for above average performance;
- 5% for companies that have a Carbon Budget; and
- 5% to 10% for a carbon offset allowance.

The tax-free allowances during the first phase of carbon tax will provide different sectors with adequate resources and time to allow them to convert their activities through investments in energy efficiency, renewables and other low carbon measures (National Treasury, 2018. This will allow entities to include carbon tax as part of their operations and gives them an opportunity to be able to be compliant with the new carbon tax. These measures are in a form of a transitional tax-free emission allowances.

3.5.6 Revenue recycling

The government does not follow a strict revenue-recycling process. It was proposed in the carbon tax policy that revenue collected should be indirectly recycled to poor households by increasing the budget for free basic electricity or alternative energy for low income households or provide more efficient public transport (Department of Planning, Monitoring and Evaluation, 2017).

3.6 RESEARCH ETHICS

The following research ethics were applied throughout the study:

- Permission to conduct research from the Department of Taxation's (Faculty of Economic and Management Science) Research Ethics Committee was obtained before data could be collected.
- The research was conducted in accordance with the ethical requirements to report the findings in a comprehensive and honest way.

3.7 SUMMARY

Table 7 provides a summary of the literature reviewed in Chapter 3.

Table 7: **Summary of Chapter 3**

	Tobacco sin tax[3]	**Alcohol sin tax[3]**	**Sugar tax[4]**	**Carbon tax[5]**
Background	Government introduced above increases after 1994 and the Tobacco Control Act	Introduced inflation hikes on tobacco alcohol after 1994	Government introduced a 'sugar tax' called Health Promotion Levy (HPL) in April 2018	Government introduced a carbon tax in June 2019
Reasons for introduction	Public health threats posed by tobacco-related illnesses and deaths.	Public health threats posed by alcohol-related illnesses and deaths.	Obesity is a growing epidemic linked to excessive sugar consumption and a major risk factor to mortality	South Africa has a relatively high per capita for carbon emissions
	Major cause of NCD's	Major cause of NCD's	Unhealthy diets are a major cause of NCD's	Cause of climate change
	Correction of market failure in tobacco prices not reflecting harmful effects of tobacco use	Correction of market failure in alcohol prices not reflecting harmful effects of alcohol products	Send a price signal that would discourage the consumption of SSB's	Correction of market failure in carbon dioxide not reflecting harmful effects on the environment
	Internalise external health and social costs	Internalise external health and social costs		Internalise the costs associated with environmental pollution
Objectives	Reduce tobacco consumption	Reduce alcohol consumption	Promotion of health	Limit carbon emissions
	Raise additional revenue	Raise additional revenue		
Tax Base	Cigarettes, cigars and pipe tobacco	Alcohol content in beer, wine and spirits	SSB's	GHG emissions in excess of threshold (10 Mega Watts installed thermal capacity)
Tax Rate	Target tax burden of 40% on tobacco products	Target tax burden of 11% (beer), 23% (wine) and 36% (spirits)	2.21 per 100ml	R120 per tonne of CO2e

[3] Van Walbeek (2006); African National Congress (1994:51); WHO (2015); National Treasury (2014); (National Treasury (2019)

[4] National Treasury (2016); Department of Health (2016); National Treasury (2017)

[5] National Treasury (2019); Department of Environmental Affairs (2011); National Treasury (2010); National Treasury (2018)

	Tobacco sin tax[3]	Alcohol sin tax[3]	Sugar tax[4]	Carbon tax[5]
Tax-free allowances and exemptions	None	None but favourable towards wine.	Exemption: 100% fruit and vegetable juice, unsweetened milk and unsweetened milk products	Exemption: Some agriculture and forestry activities Tax free allowances: Up to 95%
Revenue Recycling	No	No	No	No

CHAPTER 4

4 CHAPTER 4 – PRACTICAL APPLICATION OF CHANGE UNWANTED SOCIAL BEHAVIOUR IN SOUTH AFRICA

4.1 INTRODUCTION

Studies show that the use of tobacco, physical inactivity, harmful alcohol use and an unhealthy diet are the world's leading causes of NCD's (WHO, 2010:27). Many health organisations and governments are pro the use of tax to change unwanted social behaviour citing that tax is a cost-effective measure and that a price hike will internalise negative externalities associated with the unwanted behaviour. The aim of this chapter is to review the extent to which tobacco sin tax, alcohol sin tax, sugar tax and environmental taxes have been effective in changing unwanted social behaviour. This chapter provides an analysis of the impact of price on the consumption of harmful products, changes in consumption and behavioural outcomes of consumers and producers.

4.2 SIN TAX ON TOBACCO

4.2.1 Impact of price on tobacco consumption

The price hike in tobacco through sin tax essentially seeks to compensate for negative externalities experienced by smokers and the society in the form of early deaths, health costs, lost productivity and the harmful impact on society (Lemboe & Black, 2012:4). Tobacco prices need to be set at a level where smokers can internalise the harmful effects of tobacco and ultimately discourage the use thereof (Lemboe & Black, 2012). However, despite the rapid price increases, people seem unwilling to change their behaviour (Lemboe & Black, 2012:4). Studies show that like food, fuel and other necessities, the demand of tobacco is price inelastic, especially for the African population group (Burger, Coetzee, Kreuser, & Rankin, 2017). According to the WHO (2019), it is difficult to curb the spending behaviour as tobacco is very addictive. The price elasticity of the demand for cigarettes ranges between -0.5 and -0.7 indicating that an increase in price alone is unlikely to have a significant impact on tobacco demand (Boshoff, 2008). The relative price

inelasticity of cigarette demand will limit the impact a price increase can have on tobacco consumption (Lemboe & Black, 2012).

Reduction in consumption will be very small in relation to the price increase (Lemboe & Black, 2012). Goods and services with a demand that is relatively price inelastic will face higher taxes than goods and services that are more price sensitive (Lemboe & Black, 2012: 5). According to Boshoff (2008:13), "it is mistaken to argue that a 10% increase in cigarette prices today will reduce consumption by an amount similar to the reduction achieved by a hypothetical 10% increase in the 1990's, as preferences and economic conditions are quite different". Boshoff (2008) is of the view that there are other factors that may affect smokers' ability to respond to a price increase including the business cycle in which the price increase occurs, as well as the overall health awareness. Boshoff (2008) contends that other than price increases in the 1990's, a substantial change in smoking behaviour was influenced by the slow economic growth coupled with focused health awareness campaigns that took place.

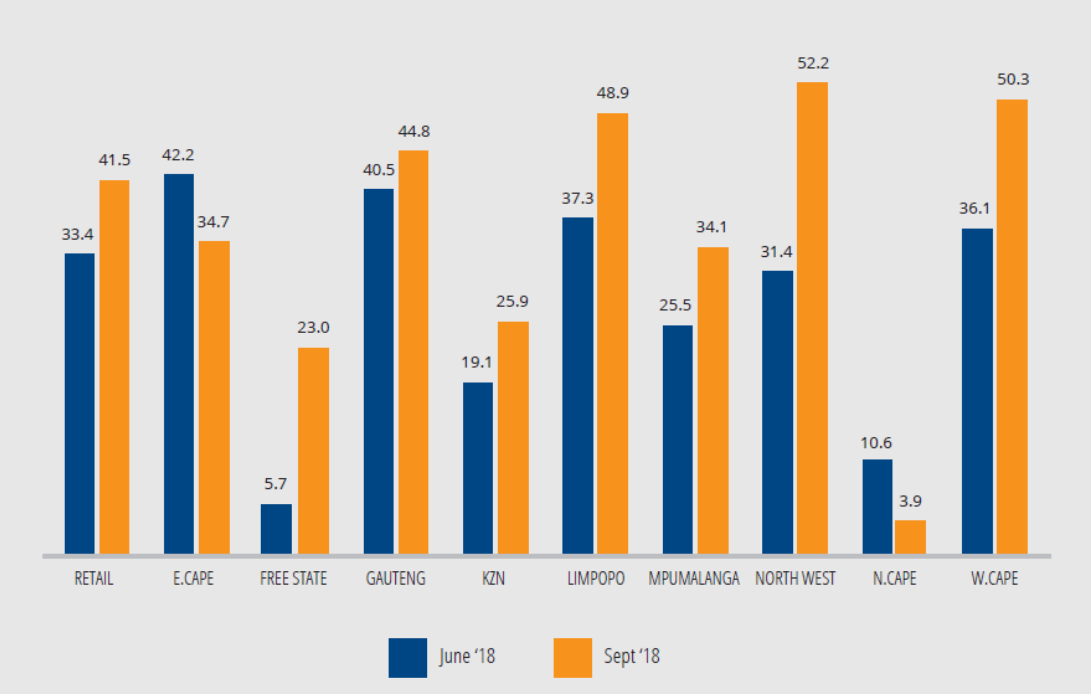
According to Boshoff (2008), the effect of price increases on cigarettes is counterfeited by increased disposable income which makes cigarettes affordable to more people. The lack of new health awareness campaigns is also believed to have an impact on tobacco consumption (Boshoff, 2008). The reduction in tobacco use has mainly been attributable to the regulatory restrictions introduced by the Tobacco Products Control Act which came into effect in 1993 (Lemboe & Black, 2012). The Act banned smoking in public spaces and offices, it banned cigarette advertising, placed compulsory minimum health warnings on tobacco packaging and restricted the level of tar and nicotine content in cigarettes (Lemboe & Black, 2012).

4.2.2 Consumption analysis

Despite the rapid price increases, cigarette sales continue to increase rapidly as consumers turn to cheaper cigarettes. A study by Vellios, van Walbeek, and Ross (2018) indicates a 25% growth in cigarette sales in the space of three months in 2018. The growth could be higher if the sale of cigarettes by mobile hawkers, taverns and shebeens are taken into account. The minimum tax collectable on a packet of 20 cigarettes in 2018 was R17.85 or 90 cents per individual cigarette (National Treasury, 2018); however, it was found that 47% of the cigarettes sold in the informal market are sold below R17.85 (Vellios

et al., 2018). It is estimated that on average a break-even point for a packet of 20 cigarettes is R22, taking into account the tax burden. Most cigarettes priced below the minimum collectable tax are sold by hawkers and independent supermarkets (Vellios *et al.*, 2018). Figure 1 below shows the cigarette sales (in millions) below minimum collectable tax per province:

Figure 1: Cigarette sales per province



Source: Vellios *et al.* (2018)

Most of the sales growth is due to expanded distribution channels in some provinces in South Africa. The biggest increase in absolute sale volumes took place in the Free State, Northwest and the Western Cape where sales grew by close to 50% between June 2018 and September 2018. All the other provinces saw strong increases in sales volumes and only in the Eastern and Northern Cape provinces did cigarette sales decrease. This trend supports observations by the Tobacco Institute of Southern Africa (TISA) (2019) that "cigarettes are one of the world's biggest illegally traded consumer products".

The 2018 Tobacco Atlas report indicates that in South Africa over 55 000 children between 10 and 14 years of age and over 6 million adults aged 15 years and older still use tobacco each day (Drope *et al.,* 2018). It was found that on average 26.5% fewer men smoke in

South Africa (Drope *et al.,* 2018) in comparison to other medium-HDI[6] countries. Although, South Africa is making better progress compared to its peers; more than 5 million men smoke cigarettes daily (Drope *et al.,* 2018). Compared to the average tobacco use in medium-HDI countries, South African women and children came 5% and 1.68% respectively above average smokers (Drope *et al.,* 2018). The Tobacco Atlas report rated South African Advertising Ban Compliance as moderate and that more direct and indirect advertising restrictions could be implemented in order to achieve an eradication of tobacco use (Drope *et al.,* 2018). According to Drope *et al.* (2018), "complacency in the face of the tobacco epidemic insulates the tobacco industry in South Africa and ensures that the tobacco-related death toll will grow every year".

The WHO (2018a) set ambitious targets in the NCD's Global Action Plan 2013–2020 to reduce tobacco prevalence by 30%. It is projected that the target will not be met and projects a global reduction of 14% (WHO, 2018a). According to the WHO (2018a), smoking prevalence amongst the adult population decreased by 6.7% globally between 2002 and 2015. The WHO report does not take into account the existence of the illegal tobacco sold and as a result the reported decline may be even smaller than 6.7% over a period of 13 years. The WHO (2018a) indicates that there has been a downward trend in the use of tobacco with millions of tobacco users quitting since the beginning of the year 2000. The WHO (2018a) recognised that a meaningful downward trend in tobacco use was not experienced by low- to middle-income countries (LMIC's), stating that these countries experienced marginal increases in the number of people using tobacco. The marginal declines in tobacco consumption smoking among adults in South Africa are shown in Table 8 on page 33.

[6] Human Development Index

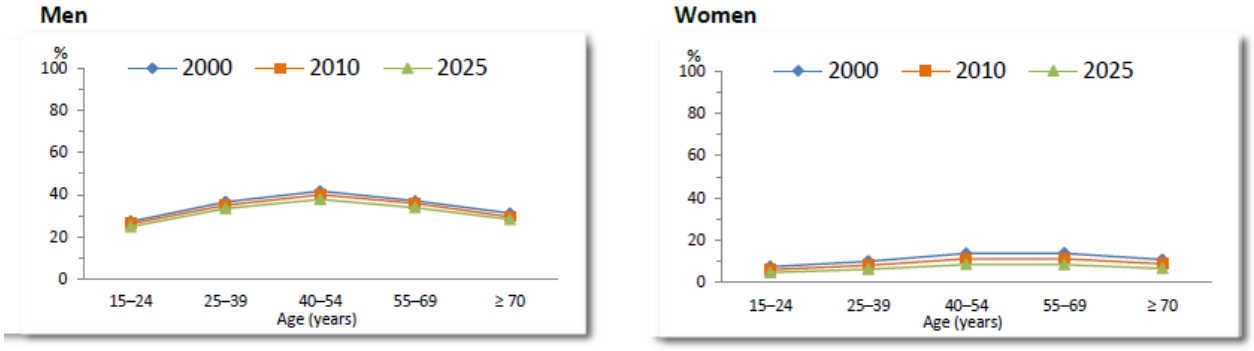
Table 8: Fitted trends in current tobacco smoking amongst adults (older than 15 years)

	CURRENT TOBACCO SMOKING (%)									
	Men			Women			Both sexes			
Year	Lower 95% credible limit	Point estimate	Upper 95% credible limit	Lower 95% credible limit	Point estimate	Upper 95% credible limit	Lower 95% credible limit	Point estimate	Upper 95% credible limit	Estimated no. of current smokers
2000	27.3	34.6	42.5	8.1	10.6	13.3	17.2	22.0	27.2	6 437 500
2005	26.9	33.9	40.3	7.6	9.7	11.6	16.8	21.2	25.3	6 925 800
2010	26.4	33.2	39.7	7.1	8.8	10.8	16.3	20.5	24.6	7 298 100
2015	25.6	32.8	41.3	5.9	8.0	10.2	15.5	20.1	25.3	7 734 800
2020	23.9	32.4	42.2	5.0	7.4	10.0	14.2	19.6	25.7	7 963 900
2025	20.6	32.2	43.8	4.5	6.8	10.0	12.4	19.3	26.6	8 255 800
Voluntary target (30% relative reduction between 2010 and 2025)		23.2			6.2			14.3		

Source: WHO (2018a)

The point estimate for both males and females show that 22% of the South African adult population smoked tobacco in the year 2000. In 2010, the smoking prevalence had declined by 1.5% to 20.5%. The trend projections indicate that in 2020, 19.6% of the South African adult population (approximately 7 963 900 people) will be smokers. The 2020 projection shows a marginal decline of 0.9% for a 10year period since 2010. From 2000 to 2025, it is projected that smoking prevalence among South African adults will decline from 22% to 19.3%, which is a marginal decline of 2.7% over a 25year period. Amongst men, the smoking prevalence in 2025 is projected to be 32.2%, a 2.4% decline since 2000. In 2025 3.8% fewer women will be using Tobacco since 2000. Figure 2 below, shows age-specific tobacco smoking trends amongst men and women respectively.

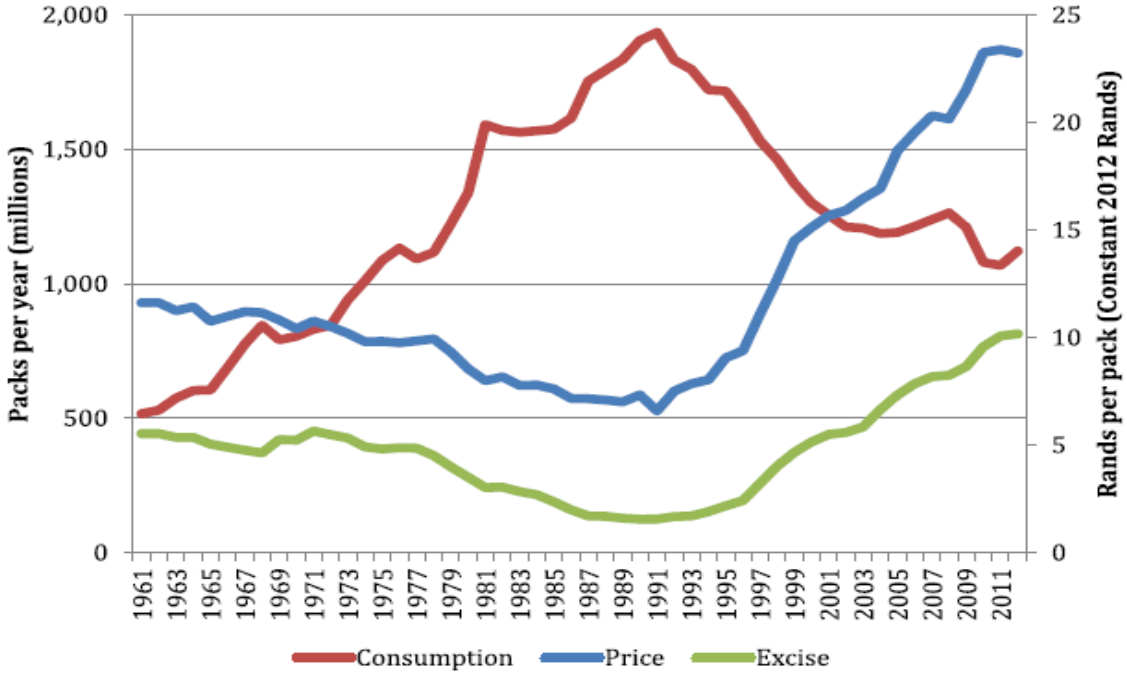
Figure 2: Fitted age-specific rates of current tobacco smoking amongst adults, 2000, 2010 and 2025



Source: WHO (2018)

Figure 2, on page 33, shows that there has hardly been any signficant decline in smoking prevelance in South Africa as the trend lines for 2000, 2015 and 2025 are so close to each other. The smoking projections in 2010, 2015 and 2025 indicate that the highest smoking prevalence is amongst the 40 – 54 years age groups for both men and women. According to the WHO (2018a) the marginal decrease in the number of people using tobacco in LMIC's is attributable to interventions by the tobacco industries in those countries which derail the importance of necessary health interventions. The consumption declines are very minimal compared to consumption declines experienced in the 1990's. Figure 3 below, illustrates changes in cigarette consumption from 1961 and 2012 as the price of a packet of cigarettes changed.

Figure 3: Cigarette excise taxes, price and consumption in South Africa



Source: E. Blecher (2015)

Cigarette consumption declined significantly from 1990 but reached a plateau in 2000. According to Blecher (2015), smoking prevalence amongst adults declined between 1993 and 2012 from 33% to 20%. The declining trend continued somewhat from 2008/9. The significant drop that took place in the 1990's coincides with the introduction of the Tobacco Products Control Act.

4.2.3 Behavioural outcome

The World Bank (2019) defines illicit tobacco trade as the distribution, sale, or buying of tobacco products that are illegal, this includes tax evasion, fabricating and smuggling. The illicit trade of tobacco is lucrative due to the non-payment of taxes on tobacco products (TISA, 2019). The minimum collectable tax on a packet of 20 cigarettes is R15.52 excluding VAT (National Treasury, 2018). In South Africa, sin tax on tobacco represents approximately 40% of the average retail price (Drope *et al.,* 2018). Illegal cigarettes are sold between R10 to R11 (Vellios *et al.*, 2018) a packet of 20's. In the informal market, the price of a packet of 20 cigarettes can be as little as R5 per packet (Vellios *et al.*, 2018). The price on the illegal market is lower than the tax collectable on legal cigarettes.

The illicit tobacco trade has managed to flourish as people have turned from the legal market as tobacco has become very expensive. The illicit industry also flourishes due to the "relative ease of production and movement and low detection rates and penalties" (TISA, 2019). It is estimated that about 600 billion illegal cigarettes are sold world-wide on an annual basis, this accounts for more than 10% of cigarette sales globally (TISA, 2019). Vellios *et al.* (2018) estimated that the illegal cigarette industry has 33.4% to 41.8% of the South African tobacco market share. According to TISA (2019) the South African government has lost over R40 billion in revenue between 2010 and 2018. The estimated loss of revenue may in actual fact be well above R40 billion as it is only based on VAT and excise duties and does not include corporate tax and personal tax.

Illegal cigarettes not only pose a revenue challenge for the government but are considered to have more harmful effects. More than 42 200 people in South Africa die from tobacco related diseases every year (Drope *et al.,* 2018) this is worse than the 20 000 per year death toll according to a study by Lemboe & Black (2012:3). Moreover, the illicit industry has caused an increase in criminal activities and compromises the safety of communities (TISA, 2019). Revenue from the illegal tobacco trade is known to fund serious crimes such as human trafficking, drug smuggling and other such crimes (TISA, 2019). According to Lemboe & Black (2012:20) "the consumption of illegal cigarettes yields a greater negative externality than the consumption of an equal quantity of legal cigarettes". The level of harmful substances such as tar, nicotine and carbon monoxide contents in illegal cigarettes is much higher than those in legal cigarettes (Lemboe & Black, 2012). Studies

show that illegal cigarettes contain “3 times more arsenic, 5 times more cadmium and 5.8 times more lead than legally manufactured cigarettes” (Lemboe & Black, 2012:20). The use of illegal cigarettes poses an even higher health risk on smokers and ultimately undermines the health objective set to be addressed by sin taxes on tobacco products.

4.3 SIN TAX ON ALCOHOL

4.3.1 Impact of price on alcohol consumption

There are existing arguments concerning whether a sin tax on alcohol can actually reduce alcohol consumption or whether it leads to a substitution of expensive alcohol for cheaper alcohol (Sornpaisarn, Shield, Österberg, & Rehm, 2017). Studies indicate that alcohol demand is relatively price inelastic (Sornpaisarn *et al.,* 2017:23). A study conducted in 10 LMIC’s evaluated the effect of taxation on alcohol demand and found that price elasticities of demand for total alcohol consumption was -0.64 (Sornpaisarn *et al.,* 2017). Price elasticity of demand varies per alcohol type and the average price elasticities of demand per alcohol type are shown in Table 9 below.

Table 9: The price elasticity of demand by beverage type in high-income countries and in LMIC’s

Beverage type	The price elasticity of demand		
	High-income countries		LMICs
	(Wagenaar et al., 2009b)[a]	(Elder et al., 2010)	(Sornpaisarn et al., 2013)
Beer	-0.46	-0.50	-0.50
Wine	-0.69	-0.64	-0.79
Spirits	-0.80	-0.79	
Total	-0.51	-0.77	-0.64

Source: WHO (2017)

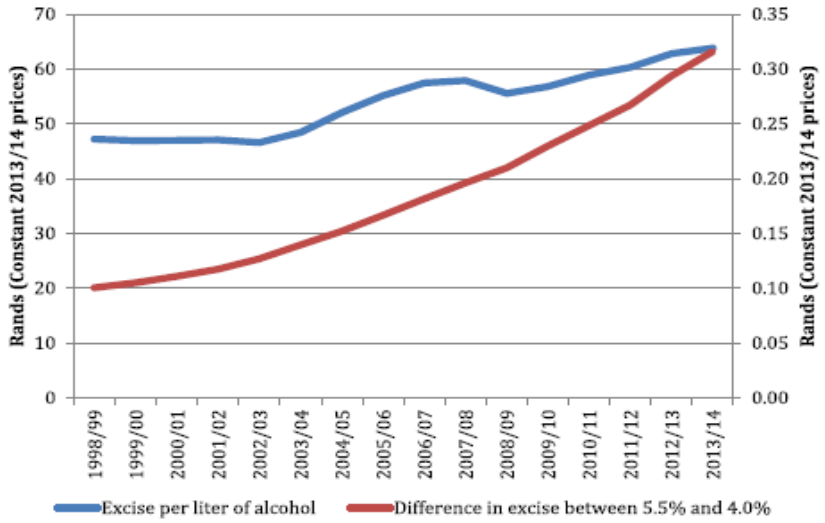
The average price elasticity of demand in LMIC’s is -0.5 for beer and -0.79 for wine and spirits. This means that a 10% increase in the price of beer will result in a 5% reduction in beer consumption and a 10% increase in wine and spirits prices will lead to a 7.9% reduction. Wine and spirits are more sensitive to price than beer. According to Sornpaisarn *et al.* (2017), reactions to a price hike will vary under different market conditions. The

above price elasticities of demand are based on the assumption that consumers make rational decisions and based on this assumption “a price increase leads to a consumption decrease and a price decrease leads to a consumption increase” (Sornpaisarn *et al*., 2017:28). This assumption has some limitations in that consumer decisions, with regard to alcohol, are not always rational as drinking alcohol is largely driven by emotional and social aspects such as friendships, social occasions and the ease of access to alcohol (Sornpaisarn *et al*., 2017:28). Furthermore, the addictive nature of alcohol may irrationalise consumer spending decisions.

A higher tax on beverages with a high alcohol content will result in low alcohol products being more affordable (Blecher, 2015). A price hike on alcohol products aims to reduce the harmful use of alcohol and as a result, consumption will reduce if alcohol producers pass the price increase on to consumers (Blecher, 2015). According to Blecher (2015), a provocative response to alcohol tax was anticipated from alcohol producers. Alcohol producers may choose to absorb the increased alcohol price by either reducing the alcohol content in their products or by shifting advertising and promotion costs from high alcohol products to lower alcohol products (Blecher, 2015). By reducing the alcohol content, producers will automatically lower the tax yield on their products or even introduce new low alcohol products (Blecher, 2015). Whether producers absorb the high tax on alcohol products by shifting advertising costs or reformulate production of alcohol products, the total volume of alcohol consumed, in general, is expected to reduce (Blecher, 2015).

Blecher’s (2015) study looks at two of South Africa’s most popular beers, Castle Lite and Carling Black Label which contain 4.0% and 5.5% alcohol, respectively. Blecher (2015) contends that as the excise tax per litre of absolute alcohol content increases, producers are incentivised to produce and supply more products with lower alcohol content. Figure 4 on page 38, illustrates excise tax per litre of absolute alcohol (left axis) and the difference in excise tax between Castle Lite and Carling Black Label (right axis). As excise tax per litre of absolute alcohol increased, the difference in tax between Castle Lite and Carling Black Label increased from 10 cents to 32 cents between 1998/99 and 2013/14.

Figure 4: Beer excise taxes in South Africa



Source: Blecher (2015)

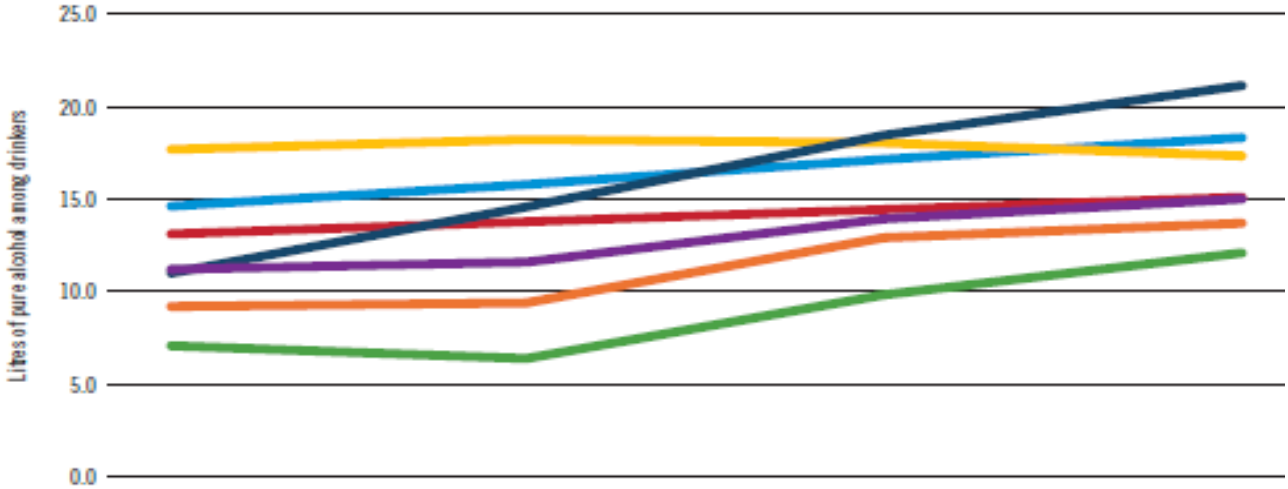
Figure 4 shows that an increase in sin tax on alcohol content will incentivise producers to supply products with a lower alcohol volume. Blecher (2015) substantiates the shift to lower alcohol products with an analysis of advertising costs incurred in respect of Castle Lite which increased between 1997 and 2013 from 7% to 26% (Blecher, 2015). There is thus a substitution effect where expensive alcohol products are substituted with cheaper alcohol. The substitution effect indicates that sin tax on content of alcohol gives rise to a cross-price elasticity of demand, meaning that a percentage increase in the price of a product will relatively result in a percentage increase in the demand for a similar product (Sornpaisarn *et al.,* 2017).

4.3.2 Consumption analysis

South Africa, like most countries has a majority of its citizens abstain from alcohol. The main challenge experienced in South Africa is the high level of absolute alcohol consumption amongst those who drink alcohol and the harmful pattern of drinking (Parry, Burnhams & London, 2012). Alcohol prevalence amongst adults older than 15 years has declined between 2010 and 2016 from 10.5 to 9.3 litres of pure alcohol per capita (WHO, 2018b:181). Although there is a decline in alcohol per capita consumption, South Africa's drinking level is still well above the African region average of 6.3 litres (WHO, 2018b:181). Among the adult population who consume alcohol, it is estimated that males consume 37,5 litres per year and females 13.7 litres translating into an average of 29.9 litres for both

sexes. The level of consumption amongst consumers of alcohol is very high in comparison with the African region's average of 18.4 litres per year. Global trends show that the total alcohol consumption has been on the rise since the year 2000 and it is predicted to continue increasing until 2025, the highest consumption increases are expected to occur in middle income countries like South Africa. Figure 5 below shows global total alcohol consumption trends between the years 2000 and 2016.

Figure 5: **Global alcohol consumption per region**



	2000	2005	2010	2016
AFR	14.5	15.7	17.2	18.4
AMR	13.1	13.7	14.5	15.1
EMR	10.9	14.5	18.5	21.2
EUR	17.6	18.3	18.0	17.2
SEAR	7.0	6.3	9.8	12.1
WPR	9.2	9.3	12.9	13.8
World	11.1	11.5	14.0	15.1

Source: WHO (2018)

South Africa still has one of the highest heavy episodic drinking (HED) prevalences in the world (WHO, 2018b:48). HED refers to a risky pattern of alcohol consumption defined as the consumption of more than 60 grams of pure alcohol, as a minimum on one occasion per month. Approximately 60% of the population in South Afica who consume alcohol are classified as heavy drinkers and the majority of this percentage is made up of young adults between the ages of 15 to 19 years (WHO, 2018b:181). Parry *et al.* (2012) contend that drastic action such as a total ban on alcohol advertising, similar to the tobacco industry, is

required to address the hazardous and harmful use of alcohol in South Africa. Alcohol advertising in South Africa is self-regulated and poses a conflict of interest as alcohol is advertised as normal drinking behaviour, especially for young people between the ages of 15 and 16 years old (Parry *et al.,* 2012). Parry *et al.* (2012) state that the inclusion of a "not for sale to persons under the age of 18" restriction in alcohol advertisements will not suffice to discourage the youth from harmful alcohol consumption. An alcohol advertising ban could yield a 16% reduction in alcohol related deaths (Parry *et al.,* 2012).

Parry *et al*. (2012) identify other regulatory measures that could efficiently reduce alcohol consumption such as, tighter controls on hours on the sale of alcohol, stricter limits for drinking and driving. The reasons why government has mainly emphasised alcohol price increases as an effective means to change unwanted alcohol behaviour, is therefore questionable. Matzopoulos, Truen, Bowman & Corrigall (2014) are of the view that much more can be done to address negative externalities resulting from the consumption of alcohol. Matzopoulos *et al*. (2014) acknowledge that the magnitude and prevalence of alcohol consumption has made the alcohol industry very powerful and influential. The alcohol industry has influenced the framework and policies guiding alcohol intervention initiatives and as a result the government has not been effective in curtailing the cost of the harmful use of alcohol and improving the livelihood of South Africans (Matzopoulos *et al*., 2014).

4.3.3 Behavioural outcome

Similar to the tobacco industry, rapid hikes in alcohol prices may lead to consumers turning to illicit markets to purchase alcohol at cheaper prices. The high price of wine, spirits and beer in South Africa has resulted in the prevalence of alcohol smuggling. The South African government acknowledges the problem of the illicit alcohol trade, smuggling and the related criminal activities. The prevalence of illicit trade in South Africa and revenue lost to the fiscus is difficult to measure (National Treasury, 2014). An estimation made by the WHO, suggests that unrecorded alcohol consumption may comprise 27% of the alcohol market worldwide (National Treasury, 2014). The WHO (2018b:41) describes unrecorded alcohol as "alcohol that is not accounted for in official statistics on alcohol taxation or sales in the country where it is consumed because it is usually produced, distributed and sold outside the formal channels under government control". Estimates

indicate that unrecorded alcohol consumption in South Africa may comprise 20% of the alcohol market given of the perceived strong enforcement policies (National Treasury: 2014).

There is a wide range of unrecorded alcohol beverages including:

- homemade or informally produced alcohol (legal or illegal).
- smuggled alcohol.
- alcohol intended for industrial or medical uses.
- alcohol obtained through cross-border shopping (which is recorded in a different jurisdiction), and
- surrogate alcohol (also known as ethanol) that was not produced for the consumption of alcohol beverages, but for the production of other products such as perfumes and mouthwash (National Treasury. 2014).

Smuggling of wine and spirits takes different forms including the use of incorrect product description in an attempt to disguise the alcohol and avoid excise duties (National Treasury, 2014). Spirits may be cleared as industrial items while they are diverted to the commercial liquor market without paying any excise duty (National Treasury, 2014). In other instances, spirits are disguised as export goods, but in actual fact they never leave the country (National Treasury, 2014). According to the National Treasury (2014:66), high alcohol excise duties within Southern African Customs Union (SACU) incentivise illegal traders in neighbouring countries to smuggle into SACU member countries. Illicit alcohol products are sold in legal and illegal outlets such as shebeens at prices lower than cost (National Treasury, 2014). It is estimated that 12.5 billion litres of non-commercial informal sorghum per annum is substituted for beer in the illegal market and that consumers switch from malt beer to non-commercial home brewed beer or cheaper wine fortified through hazardous methods (National Treasury, 2014). The illicit trade and smuggling of alcohol is extremely complex to the extent that government has not been able to combat it as it is carried out as organised crime (National Treasury, 2014).

Sin tax on alcohol aims to reduce alcohol consumption and therefore reduce alcohol-related deaths and diseases. The WHO (2018b:85) shows trends in the alcohol-attributable health burden between 2010 and 2016. Table 10 on page 42, shows the

trends in deaths attributable to alcohol consumption while Table 11, on page 43, shows trends in diseases and disabilities.

Table 10: Deaths attributable to alcohol consumption 2010 - 2016

	Deaths (thousands)		Attributable deaths (thousands)		Percentage (%) of all deaths attributable to alcohol	
Cause	**2010**	**2016**	**2010**	**2016**	**2010**	**2016**
All causes	53 544.4	56 427.7	3 001.3	2 988.3	5.6	5.3
Communicable, maternal, perinatal and nutritional conditions	12 392.0	10 999.3	381.8	385.9	3.1	3.5
Noncommunicable diseases	36 315.2	40 545.2	1 721.2	1 744.4	4.7	4.3
Malignant neoplasms	8 118.7	8 966.3	335.5	376.2	4.1	4.2
Diabetes mellitus	1 310.6	1 598.5	-24.9	-24.5	-1.9	-1.5
Alcohol use disorders	147.0	145.6	147.0	145.6	100.0	100.0
Epilepsy	135.9	137.2	15.9	17.4	11.7	12.7
Cardiovascular diseases	16 227.9	17 858.0	673.3	593.1	4.1	3.3
Digestive diseases	2 331.4	2 530.0	574.4	636.6	24.6	25.2
Injuries	4 837.2	4 883.2	898.2	858.1	18.6	17.6
Unintentional	3 494.2	3 429.3	638.1	624.1	18.3	18.2
Intentional	1 343.0	1, 453.9	260.2	233.9	19.4	16.1

Source: Adopted from WHO (2018b)

Focusing on deaths caused by NDC's, Table 10 shows that the absolute number of deaths resulting from NCD's increased between 2010 and 2016 from 36.6 million to 40.5 million. Similarly, deaths attributable to alcohol consumption slightly increased from 1.72 million to 1.74 million. However, the percentage of all deaths attributable to alcohol declined from 4.7% to 4.3% between 2010 and 2016.

Table 11: Burdens of disease attributable to alcohol consumption 2010 - 2016

	DALYs (millions)		Attributable DALYs (millions)		Percentage (%) of all DALYs attributable to alcohol	
Cause	**2010**	**2016**	**2010**	**2016**	**2010**	**2016**
All causes	2 614.3	2 604.1	134.2	132.6	5.1	5.1
Communicable, maternal, perinatal and nutritional conditions	870	739.4	15.2	14.8	1.8	2.0
Noncommunicable diseases	1 445.0	1 567.3	63.8	65.5	4.4	4.2
Malignant neoplasms	225.7	244.6	9.3	10.3	4.1	4.2
Diabetes mellitus	56.2	65.7	-1.1	-1.1	-2.0	-1.7
Alcohol use disorders	17.9	18.5	17.9	18.5	100.0	100.0
Epilepsy	14.7	14.7	1.4	1.5	9.7	10.2
Cardiovascular diseases	381.1	413.2	15.0	13.0	3.9	3.2
Digestive diseases	84.5	88.8	21.3	23.3	25.2	26.2
Injuries	299.2	297.4	55.1	52.4	18.4	17.6
Unintentional	223.5	215.2	41.1	39.7	18.4	18.5
Intentional	75.7	82.2	14.1	12.6	18.6	15.4

Adopted from WHO (2018b)

Focusing on diseases caused by NCD's, Table 11 shows an increase in the absolute number of disability-adjusted life years (DALY's) between 2010 and 2016 from 1,4 billion to 1,6 billion. DALY's attributable to the use of alcohol also increased between 2010 to 2016 from 63.8 million to 65.5 million. On the contrary, the percentage of all DALY's attributable to alcohol declined by 0.2% between 2010 and 2016.

4.4 SUGAR TAX

4.4.1 Impact of price on the demand of sugar-sweetened beverages (SSB's)

The intention of tax on SSB's is to make SSB's more expensive and to encourage consumers to switch to healthier options (Blecher, 2012). The assumption is that producers will pass the price increase on to consumers and that taxes will be substantial in order to influence purchasing decisions (Blecher, 2012). The demand of SSB's is relatively price inelastic. Studies estimate that the price elasticity of the demand on SSB's is -0.8, meaning that a 10% price increase will result in 8% reduction in consumption of SSB's (Blecher, 2012).

Studies show that 20% or 2.29 cents per 100ml increase in the price of SSB's adjusted annually for inflation will be effective to change production and consumption patterns (National Treasury, 2016). However, sugar tax was introduced at 11% or 2.1 cents as the government took cognisance of negative economic impacts of a sugar tax (National Treasury, 2016).

Preliminary studies done, provide insight into industry responses since the implementation of sugar tax in South Africa (Stacey, Mudara, Ng, van Walbeek, Hofman, & Edoka, 2019). The consumption of SSB's is expected to decrease, assuming that a tax on sugar content will make SSB's more expensive and that consumers will choose healthier beverage options. Stacey *et al.* (2019:16) argue that the perception of tax on sugar content will lead to higher retail prices makes intuitive sense, but such a perspective is "a product of a simplified partial equilibrium theoretical construct". Stacey's *et al*. (2019:16) argument is based on the fact that, in reality there are complexities such as "simultaneous existence of highly heterogeneous products, multiproduct firms and heterogeneous consumers with differential demands across a variety of beverages" and these could result in a price increase having no impact.

4.4.2 Consumption analysis

Sugar tax only came into effect a little over a year ago and as a result there is currently insufficient data to analyse any changes in the consumption patterns of SSB's.

4.4.3 Behavioural outcome

Stacy et al. (2019) found that most manufacturers also increase the price of low sugar or exempt products in a similar manner to those that are subject to sugar tax. Manufacturers also reformulated their products with many beverages that contained over 10 grams of sugar per 100ml were reduced to 5 grams of sugar per 100ml (Stacy et al. 2019). Where beverages were reformulated, beverage prices were still increased regardless of the reduced sugar tax liability (Stacy et al. 2019). These responses indicate that beverage manufacturers are able to shift the tax cost across different product brands. The beverage industry, for the manufacturing of carbonates, still has ways to cost-shift the tax across their portfolio of products (Stacy et al. 2019). According to Stacy et al. (2019) this cost-

shifting response may minimize the ability for the sugar tax in order to reduce consumption of high sugar beverages as there is a relative price increase across all types of beverages.

4.5 SUMMARY

Table 12 below, provides a summary of the literature reviewed in Chapter 4.

Table 12: Summary of Chapter 4

	Tobacco sin tax[7]	**Alcohol sin tax[8]**	**Sugar tax[9]**
Impact of price on tobacco consumption	Relatively inelastic (-0.5 and -0.7)	Relatively price inelastic (-0.5 for beer and -0.79 for wine and spirits)	Relatively price inelastic (-0.8)
	Factors affecting demand other than price: - Business cycle in which price increase occurs - Economic growth - Disposable income - Health awareness	Factors affecting demand other than price: - Alcohol adverts - Social occasions - Ease of access - Emotional decisions	Factors affecting demand other than price: - Highly heterogeneous products - Multiproduct firms - Heterogeneous consumers - Differential demand across a variety of beverages
	Strict tobacco controls (advert bans, public smoking restrictions, etc.)	Differential sin tax on alcohol leads to a shift from high to low alcohol beverages	
Consumption analysis	Current tobacco prevalence: 20% of South African adults use tobacco	Per capita alcohol consumption declined between 2010 and 2016 from 10.5 to 9.3 litres of pure alcohol	No data available
	The biggest drop in tobacco consumption was experienced in the 1990's by more than 10%	Global trends show an increase in heavy episodic drinking (HED) in middle-income countries	

[7] Boshoff (2008); Lemboe & Black (2012); WHO (2019); (Drope *et al.,* 2018); WHO (2018a or b); Blecher (2015); National Treasury (2018); Vellios *et al.* (2018); TISA (2019);

[8] Sornpaisarn *et al*. (2017); Blecher (2015); WHO (2018b); Parry *et al.* (2012); Matzopoulos *et al*. (2014); National Treasury (2014);

[9] Blecher (2012); National Treasury (2016); Stacey *et al* (2019);

	Tobacco sin tax[7]	Alcohol sin tax[8]	Sugar tax[9]
	WHO study indicates that tobacco consumption dropped by 1.9% from 2000 to 2015 (15 years)	Marginal consumption increases	
	WHO study projects tobacco prevalence to drop by 2.7% between 2020 and 2025		
Behavioural outcome	Shift from legal to illegal cigarettes	Manufacturers shift supply and marketing costs to low alcohol products	Manufacturers increased price of low sugar or exempt beverages even though there's no tax liability
	Tax burden on legal cigarettes: R17.85	Shift from legal to illegal alcohol	Products reformulated and prices still increased regardless of the reduced sugar tax liability
	Price of illegal pack of cigarettes: R5	Price of illegal alcohol not determined	Manufacturers shift the tax cost across different product brands
	Estimated minimum revenue loss due to illicit trade: R40 billion	Loss of revenue not determined	
	Consumption of illegal cigarettes poses worse health risks	Harmful products used in the production of illegal alcohol	
	Number of people dying from tobacco related diseases has increase from 20 000 per year in 2004 to 42 000 per year in 2018		

CHAPTER 5

5 CHAPTER 5 – CONCLUSION

5.1 INTRODUCTION

The main aim of this study was to explore Change Unwanted Social Behaviour as a fundamental principle of taxation as proposed by Du Preez (2016). Chapter 5 provides an analysis of how the research objectives were met and also presents a summary of findings from Chapter 3 and Chapter 4. This chapter further provides an analysis of the effectiveness of sin taxes on tobacco and alcohol, sugar tax and carbon tax in order to change social behaviour. Recommendations for future research as well as limitations of this study are briefly discussed. Chapter 5 is then concluded with closing remarks.

5.2 HOW THE RESEARCH QUESTION WAS ANSWERED

Change Unwanted Social Behaviour was identified as a fundamental principle of taxation by Du Preez (2016). However, Change Unwanted Social Behaviour was only quoted by first world participants indicating that taxation may be perceived to influence behaviour only in first world countries. The OECD (2018) tax policy trends show that most OECD member countries have adopted tax policies that are aimed at changing social behaviour. The Mirrlees Review (2011) and the Davis Tax Committee (2015) also endorsed the principle of influencing harmful social behaviour through taxation.

The objectives that were prevalent in this study were:

- To analyse the history, theory, objective and design of various social taxes in South Africa including: sin taxes on tobacco and alcohol, sugar tax and carbon tax.
- To analyse from a practical perspective the impact of taxation on consumption of harmful products within various industries, and
- To analyse how government has applied the additional revenue.

5.2.1 Sin tax on tobacco

Sin taxes have long existed in South Africa. The new government introduced above inflation increases since 1994 recognising “millions of South Africans abuse alcohol, tobacco, cannabis (dagga), and solvents like petrol and glue, and other harder drugs” (African National Congress, 1994:51). In addition, the government introduced the Tobacco Control Act to prevent the surge of tobacco consumption. Tobacco consumption is amongst the highest causes of NCD’s and early deaths putting strain on the government’s public health bill. In South Africa, sin tax on tobacco represents approximately 40% of the average retail price of tobacco products (Drope *et al.,* 2018). Through the increased tobacco price, the government seeks to correct a market failure and have the price of tobacco products reflect its harmful effects on smokers and the society. The expected outcome is that the increase in tobacco price would discourage tobacco consumption. The government has also been explicit that tobacco sin tax is a way of raising additional revenue.

The extended literature review in Chapter 4 shows that:

- Tobacco demand is relatively price inelastic. Studies estimate that a 10% increase in tobacco price will reduce tobacco consumption by 5% to 7%. The biggest drop in tobacco consumption which was more than 10% was experienced in the 1990’s. This drop coincides with the introduction of tobacco controls and health awareness campaigns that took place in the 1990’s.
- Since the 1990’s only marginal declines have been experienced in tobacco consumption. From 2000 until 2015, tobacco prevalence amongst South African adults older than 15 years only declined by 1.9%.
- Recent studies confirm the prevalence of the illicit tobacco industry where a packet of cigarettes costs less than the sin tax of R17.85. Some reports suggest that consumers can obtain a packet of 20 cigarettes for as little as R5.
- The estimated minimum loss of revenue due to illicit cigarettes and smuggling is R40 billion.
- Illicit cigarettes have worse health effects as they are not regulated on the level of tar, nicotine and carbon monoxide contents.

- Illicit industry increases criminal activity as profits from these activities are known to fund serious crimes such as human trafficking and drug smuggling.
- The number of tobacco-related deaths has doubled from 2004 to 2018 with more than 42 000 people dying per year.
- The WHO shows a global increase in NCD's citing that tobacco use is one of the major causes.

In light of the health risks posed by tobacco consumption, it appears that the government should use a fiscal measurement in an attempt to discourage the use of tobacco and raise additional revenue to meet rising public health costs. The relative price inelasticity of tobacco indicates that price increases alone will not yield significant results in reducing the consumption of tobacco and curbing NCD's. In reality, high sin taxes have resulted in the demand for illegal cigarettes which are far more harmful and have an even more severe impact on health and the society. The illicit industry has not only cost the government R40 billion in VAT and excise duty revenue but also unquantified corporate and personal income tax. Therefore, sin tax on tobacco has not been effective to change unwanted smoking behaviour.

5.2.2 Sin tax on alcohol

Similar to tobacco sin tax, alcohol sin tax existed before 1994 and the new government introduced above inflation increases from 2002, citing that it is the right thing to do. Alcohol sin tax is differentiated between beer, wine and spirits in order to tax beverages with a higher alcohol content at higher rates. Currently the alcohol tax burden is 11%, 23% and 36% on beer, wine and spirits respectively. South Africa has relatively low alcohol consumption per capita, what is of concern is the level of HED amongst those who consume alcohol. Through alcohol sin tax, the government aims to correct a market failure in the price of alcohol and internalise harmful alcohol effects. An expected outcome is that alcohol consumption would decrease as the prices increase through sin tax. The government also aims to raise additional revenue through alcohol sin tax.

The extended literature review revealed that:

- Alcohol demand is relatively price inelastic (-0.5 for beer and -0.79 for wine and spirits) and that price increase alone is not sufficient to effect a change in harmful alcohol consumption.
- Other factors affecting alcohol demand, other than price, include alcohol advertising, social occasions, ease of access to alcohol and emotional decision making.
- Differential sin tax rates on alcohol leads to a shift from high to low alcohol beverages as producers shift costs between alcohol products;
- Per capita, alcohol consumption declined between 2010 and 2016 from 10.5 to 9.3 litres of pure alcohol.
- Global trends show that the prevalence of HED has been worsening since the year 2000 and is expected to continue in middle-income countries like South Africa.
- The government acknowledges the existence of illicit alcohol trading and smuggling. The illicit alcohol industry is estimated to make up 20% of the alcohol market.
- The economic impacts of the illegal alcohol industry have not yet been estimated.
- Harmful products used in the production of illegal alcohol have even worse health impacts than legal alcohol.

In light of the health risks posed by harmful alcohol consumption, it appears that the government should use a fiscal measurement in an attempt to discourage the use of alcohol and raise additional revenue to meet rising public health costs. However, there is no evidence that sin tax on alcohol has changed harmful drinking behaviour, instead global trends project that HED will increase in middle income-countries. Sin tax on alcohol has also encouraged the existence of illicit alcohol trade and smuggling which results in more harmful health and social impact than legal alcohol.

5.2.3 Sugar tax

The price hike in SSB's is intended to make SSB's less affordable and therefore shift consumption to more healthy beverages with less sugar content. However, Stacy *et al.* (2019:19) argue that a high tax on sugar beverages will not necessarily result in the price of SSB's increasing. According to Stacy *et al.* (2019:19) prices in the non-alcoholic beverages market are affected by other factors such as the concurrent existence of "highly heterogeneous products, multiproduct firms, and heterogeneous consumers with differential demand across a variety of beverages". Preliminary studies indicate some provocative responses from manufacturers including price increases on products that are not subject to sugar tax, reformulating products and still increasing prices regardless of lower tax liability and shifting increased costs between beverage brands. These responses by manufacturers have a great potential to undermine the effect that the sugar tax is meant to have, as all products relatively increase in price and thus consumers are not discouraged from consuming SSB's.

5.2.4 Carbon tax

Climate change is caused by GHG's and countries are obligated to act as responsible global citizens and take action against unsustainable carbon emissions. The introduction of carbon tax in South African is new and the government has provided up to 95% in tax free allowances to encourage an uptake of various environmentally friendly and reporting initiatives. It is not clear to what extent South Africa will effectively "stimulate behaviour changes amongst producers and consumers" (DEA, 2011:40) through taxation of carbon emissions given that the South African economy depends heavily on coal for energy generation.

5.3 RECOMMENDATIONS AND LIMITATIONS

The main limitation in this study is that sugar tax and carbon tax were recently implemented in South Africa and as a result, there is currently insufficient data to analyse the potential impact of these taxes on consumption patterns. The study is performed from a South African perspective; however, where South African based literature was insufficient, global research performed by the WHO was used. Furthermore, the study does not address all South African taxes that were introduced to change social behaviour

such as the plastic levy, tyre levy and carbon tax included in the fuel levy. Moreover, an analysis of the use of additional revenue collected by the government could not be performed due to lack of revenue ring-fencing.

Future research could be done to analyse the impact of the sugar tax and carbon tax and the supposed health and environmental benefits.

5.4 CLOSING REMARKS

From the analysis performed in this study, the harmful effects arising from the consumption of tobacco, alcohol, SSB's and the emission of carbon dioxide, call for government to implement appropriate intervention. Although using fiscal measurements may be deemed cost effective, an actual analysis of consumption patterns reveals that taxation has little or no impact on social behaviour. Tobacco control regulations implemented in the 1990's had a more significant impact on tobacco consumption than above inflationary increases tobacco taxes have been able to yield in 25 years. Although global researches endorse the use of taxation to change unwanted social behaviour, there is no evidence from South Africa as a middle-income country that taxation is perceived to change unwanted social behaviour. In the case of sin taxes on tobacco and alcohol, the shift to illegal tobacco and alcohol industry appears to be more harmful than the consumption of legal products and results in severe health risks. Change Unwanted Social Behaviour as a fundamental principle of taxation appears to be invalid from a South African context as taxation has not proved to effectively change unwanted social behaviour.

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