

Cigarettes taxes and smuggling in South Africa: Causes and Consequences

By

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1. Introduction

Historical accounts of the use of sin taxes³ indicate that they have been around for hundreds of years in many forms and levied on a range of goods. There are even accounts of taxes levied on legal prostitutes by Pope Leo X and a tax on beards levied by Peter the Great (Times Magazine, April 2009). However, the main motivation during those times was to raise capital to finance their lavish lifestyles. Since then, sin taxes have grown in popularity. South Africa is no exception and has over the past few years dramatically increased taxes levied on “sin” goods such as tobacco and alcohol. The aim of these taxes has primarily been to address issues arising from the negative externalities, and current literature seems to be toasting its success in this regard.

The focus of this paper is mainly on tobacco taxes as part of a broader tobacco control policy framework as much of the success of South Africa’s tobacco control policy has been attributed to the prominent role played by increased tobacco taxes. However, this paper looks at the extent to which tobacco consumption has actually been reduced considering both the legal and illegal market. It reveals that despite the significant reduction in the consumption of legal cigarettes a substantial illegal market for cigarettes exists in South Africa and that tax increases serve as an incentive for this market to continue thriving due to the enabling environment created by cigarette price differentials. Furthermore, the informal networks that arose during Apartheid have facilitated cross-border cigarette smuggling making it much easier to conduct in South Africa than in other countries. The focus of this paper is on cigarette tobacco, which represents roughly 95% of tobacco consumption in South Africa (Datamonitor, 2010).

2. Rationale for Cigarette Taxes

According to the World Bank (1999), smoking kills one in 10 adults worldwide and by 2030 one in six deaths each year will be smoking related. Using the South African death notification system, Sitras et. al. (2004) calculate that 8% of all adult deaths in South Africa were caused by smoking, which translates to approximately 20 000 deaths per year. In addition, 58% of lung cancer deaths, 37% of COPD⁴ deaths, 20% of tuberculosis deaths and 23% of vascular deaths could have been avoided in the absence of tobacco smoking.

³ Cigarette taxes are considered to be sin taxes as there are generally considered to be harmful or morally undesirable to consume.

⁴ Chronic obstructive coronary disease

From a theoretical perspective, the primary reasons for implementing taxes on cigarettes can be categorized under one or both of the following two areas (Abedian and Jacobs, 2001):

- Reducing consumption and internalizing the negative externality
- Increasing government revenue

The rationale for government intervention stems from the role governments have to play in correcting market failures in the economy. In the case of tobacco, the main market failures are the presence of externalities, as well as a lack of information regarding the health implications of tobacco consumption (Ross and Chaloupka, 2006). Through the consumption of cigarettes, smokers impose an external cost to other members of society. These so called externalities are usually considered to be rather small (Gruber and Koszegi, 2008), but could include larger external costs such as increased health⁵ and insurance costs and lower workplace productivity⁶ (Viscusi, 2003 and Gruber and Koszegi, 2008). Theory suggests that an efficient level of consumption would ensure that the price of cigarettes is such that it takes into consideration the harm inflicted by smoking on society as well as on the individual's own welfare (Viscusi, 2003 and World Bank, 1999). Therefore, the tax should be set at a level at which all of the social costs of cigarette consumption are fully compensated for. In other words, the cigarette tax acts as a Pigouvian tax and attempts to have smokers internalize the external costs imposed by their smoking⁷ (Viscusi, 1995). An additional externality may be an increase in criminal activity as many cigarette smugglers use the profits derived from their illegal trade in tobacco to fund some of their other criminal activities.

However, the reduction in consumption does not completely eliminate the negative externality. There is still an externality caused by the remaining cigarettes consumed. This, in theory, is "compensated" for by the tax revenue received by the state.

Since 1995, South African government revenue derived from cigarette taxes increased from an estimated R1.5 billion to just under R9 billion in 2008/09. From a revenue perspective, increased taxes on cigarettes are also found to be more efficient as the demand for cigarettes is relatively inelastic.

⁵ According to Ross and Chaloupka (2006), the annual cost of healthcare as a result of tobacco use is estimated to be between 6 and 15% of total expenditure on healthcare in developed countries.

⁶ Halpern et. al. (2001) found that current smokers have a significantly higher absenteeism rate than never and former smokers.

⁷ In South Africa the estimated external cost of smoking was R1.4 billion in 1988 (Yach, McIntyre and Saloojee, 1992).

According to Frank Ramsey (1927), taxes should be higher on goods for which demand is relatively inelastic and lower on goods and services for which demand elasticity is relatively high. The continued increase in government revenue despite increasing sin taxes is the result of consumers' relatively low willingness to change their current consumption patterns. In South Africa, a number of studies regarding the elasticity of cigarette consumption have been concluded. The most recent by Boshoff (2008), found that the price elasticity of demand for cigarettes is somewhere between the range of -0.5 to -0.7. Boshoff also acknowledges that the lack of data regarding the illicit cigarette market would likely result in an upward bias of current estimates (Boshoff, 2008).

Table 1: Price elasticity for cigarettes in South Africa

Author	Price elasticity	Sample period
Reekie (1994)	-0.87	1970 - 1989
van Walbeek (1996)	-0.53 to -1.52	1970 - 1990
van der Merwe and Annett (1998)	-0.69	1970 - 1995
van walbeek (2000)	-0.6	1970 - 1998
Boshoff (2006)	-0.5 to -0.7	Various

Source: Boshoff, 2008

However, it is the very nature of cigarette demand elasticity (or relative inelasticity) that limits the reduction in cigarette consumption (and therefore also the reduction in the negative externality) following a tax-induced price increase. In fact, the reduction in consumption is likely to be relatively small in comparison to the extent of the price increase. Therefore, other measures or programmes are required to reduce cigarette consumption. Black et. al. (2005) note that regulation and restricted property rights in respect of smoking are other interventions which could possibly assist in reducing the negative externality. The South African authorities have especially focused on the regulation component of intervention. These regulations include: limiting the extent of exposure to second-hand smoking by banning smoking in public and work places, banning cigarette advertising and increasing the percentage of the product package dedicated to health warnings and labels. Further regulatory interventions are related to the maximum permissible tar and nicotine content of cigarettes⁸ (which directly affects the extent of the negative externality).

⁸ In 2001, the tar yield of cigarettes was set at a maximum of 15 mg per cigarette and the nicotine yield was set at a maximum of 1.5 mg per cigarette. In 2006 this threshold of lowered to a maximum of 12 mg of tar yield and 1.2 mg of nicotine yield per cigarette.

Additional comments by Black and Mohammed (2006), point to a previously over-looked caveat of tobacco taxes⁹, i.e. that existing data often does not take into account the intra-household's response to increased tobacco taxes. Importantly, existing data also fails to capture the possible substitution of lower quality tobacco products for higher quality products in response to an increase in cigarette taxes. Both these complications can erode the effectiveness of sin taxes as a measure to reduce the negative externality of cigarette consumption and in extreme cases aggravate the problem.

Furthermore, the evidence presented by both the international and national literature regarding the impact of sin tax hikes assumes either no cigarette smuggling, or a very small and insignificant illegal market.

3. Basic Hypothesis

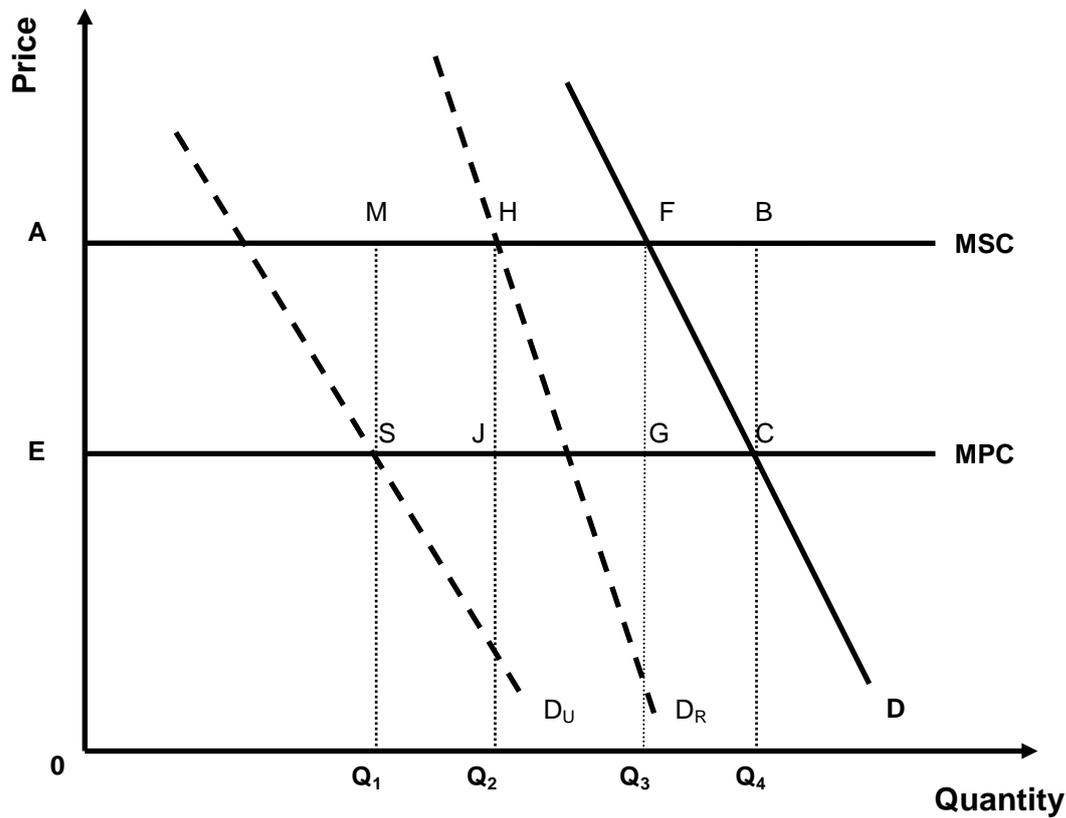
The existence of an illegal¹⁰ cigarette market in South Africa has long been argued to be only a fraction of total cigarette consumption and therefore does not erode the effectiveness of government-induced price increases (sin taxes). However, evidence presented in this paper suggests that the level of cigarette smuggling in South Africa is indeed significant and that cigarette taxes have to a large extent contributed to its continued existence. This has important consequences for government intervention in the tobacco industry. The hypothesis is therefore three-fold:

Firstly, there exists a tax-induced substitution effect, encouraging smokers to divert purchases to non-taxed and illegal tobacco supplied by foreign and domestic smugglers. As a result the total demand for tobacco (curve D in Figure 1) is split into a so-called unrecorded (illegal) market, consisting mostly of smuggled tobacco products, and a recorded (or official / legal) market for tobacco. The demand curves are given by D_U and D_R respectively. This implies that the tax-induced emergence of an unrecorded market is a direct consequence of the corresponding decrease in the recorded market.

⁹ The study by Black and Mohammed also looks at alcohol taxes.

¹⁰ In this paper the words, illegal, illicit and unrecorded will all refer to the smuggled cigarettes.

Figure 1: Recorded and unrecorded cigarette market

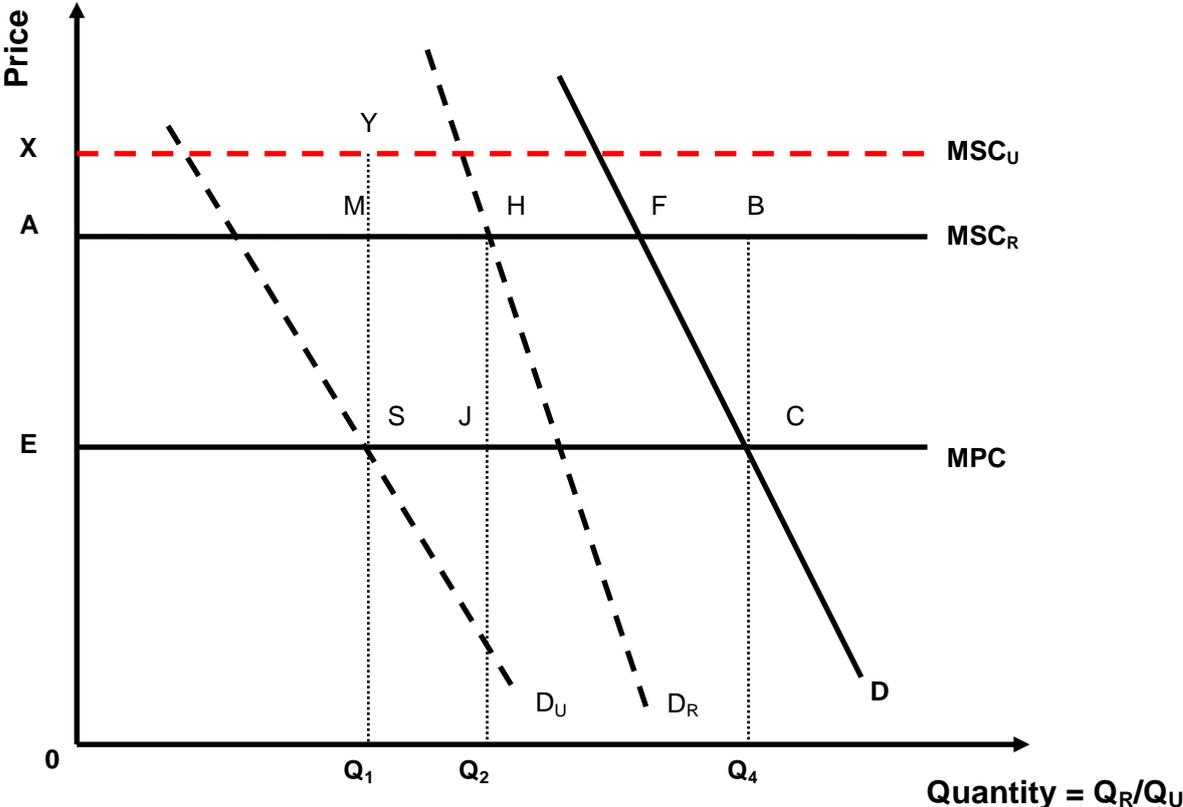


Secondly, with the existence of an unrecorded market the externality may be underestimated. Referring to figure 1 above, the recorded market achieves equilibrium at point H consuming $0Q_2$ units of (legal) tobacco at the tax-inclusive price of $0A$. The unrecorded market pays no tax and reaches equilibrium at point S consuming $0Q_1$ units at the tax-exclusive price of $0E$. Government revenue of $AHJE$ is fully paid for by the recorded market. Although the post-tax quantity ($0Q_2 + 0Q_1$ or $EJ (=AH) + ES$) is smaller than the pre-tax quantity at point C, the impact on the size of the externality is evidently negligible: pre-tax it is the area $ABCE$ and post-tax it is the sum of areas $AHJE$ and $AMSE$. The effect of tax-induced tobacco smuggling is therefore twofold: it reduces government revenue below the level applicable to a smuggle-free scenario (i.e. $AFGE$ in Figure 1) and has an evidently negligible if not perverse impact on the size of the negative externality.

Thirdly, illegal cigarettes may not subscribe to the minimum standards in terms of content (of harmful substances) as prescribed by regulation (especially if these cigarettes are produced in countries with less strict requirements). As such, these “lower” quality cigarettes could have a perverse effect on the negative externality. Figure 2 below depicts the market for cigarettes with, as before, total demand comprising both illegal and legal cigarettes. In our previous hypothesis we assumed that these products were homogenous. However, should the illegal cigarettes be of a lower quality (eg. causing a higher incidence of tobacco related disease and

deaths) then the resultant negative externality per unit consumed would be higher than for legal cigarettes. In other words, the marginal social cost of consuming illegal cigarettes will be higher. This is depicted by MSC_U below. The total after-tax externality in the case of inferior quality illegal cigarettes is raised by area $XYMA$. Therefore, the total externality (post-tax) could in fact be higher than the pre-tax externality.

Figure 2: With lower quality smuggled cigarettes



4. Measuring cigarette smuggling

The methodology used here is based on one suggested by the World Bank¹¹ and for which South Africa has relatively complete information. In essence, legal tobacco sales based on excise tax revenue estimates released by the National Treasury (NT) will be compared to cigarette consumption as measured by an independent consumption survey - in this case the AMPS (All Media Purpose Survey) database. The discrepancy between the two (if-any) is assumed to equal the level of smuggling.

¹¹ In his paper Merriman also suggests other methods of calculating the level of tobacco smuggling. However, this method was chosen as there is sufficiently reliable data available.

The AMPS data is based on information pertaining to the number of cigarettes smoked the day before the survey to which respondents would indicate the number of cigarettes consumed within various bands, heavy¹², medium¹³, and low¹⁴. The number of individuals in each category is then multiplied by the midpoint of the category to obtain the approximate number of cigarettes consumed the previous day. This figure is multiplied by 365 to get annual data which is then comparable to the data made available by the NT. Crucial to the validity of estimates according to Merriman (2003) and Wasserman et. al. (1991) is that allowance be made for under-reporting of cigarette consumption due to the socially undesirable nature of smoking.

However, in the case of the AMPS data it is difficult to discern whether or not “heavy” smokers are more likely to under-report than “light” smokers. Blecher (2010) also highlights some constraints to the data.

4.1.Results

The AMPS data shows that cigarette consumption declined from around 80 billion sticks per annum in 1998¹⁵, to a little over 45 billion sticks in 2008. This shows a reduction of almost 50%. However, the data reveals that the big decline in consumption actually took place between 2000 and 2001. Since 2001, cigarette consumption has remained largely unchanged hovering around the 45 billion sticks mark.

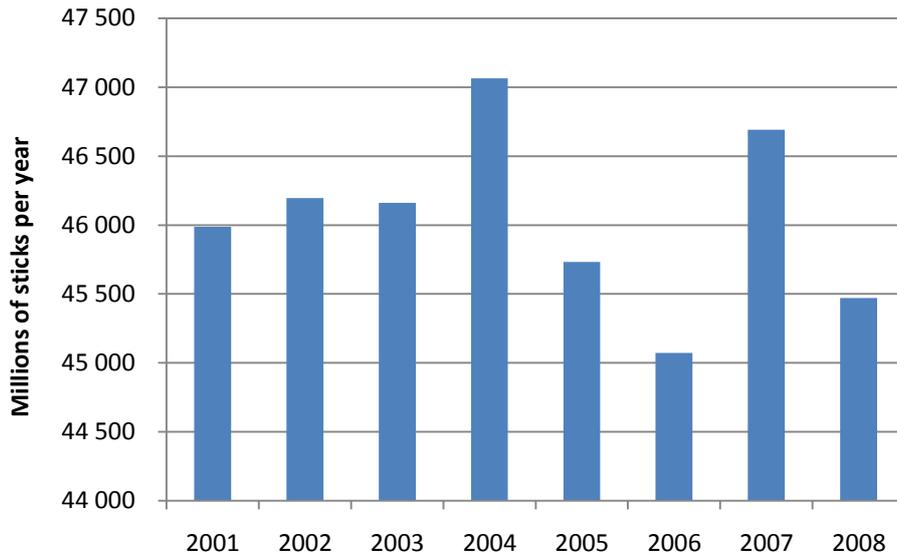
¹² Are smokers that indicated they smoked between 11 – 99 cigarettes the day before

¹³ Are smokers that indicated they smoked between 6 – 10 cigarettes the day before

¹⁴ Are smokers that indicated they smoked between 1 – 5 cigarettes that day before

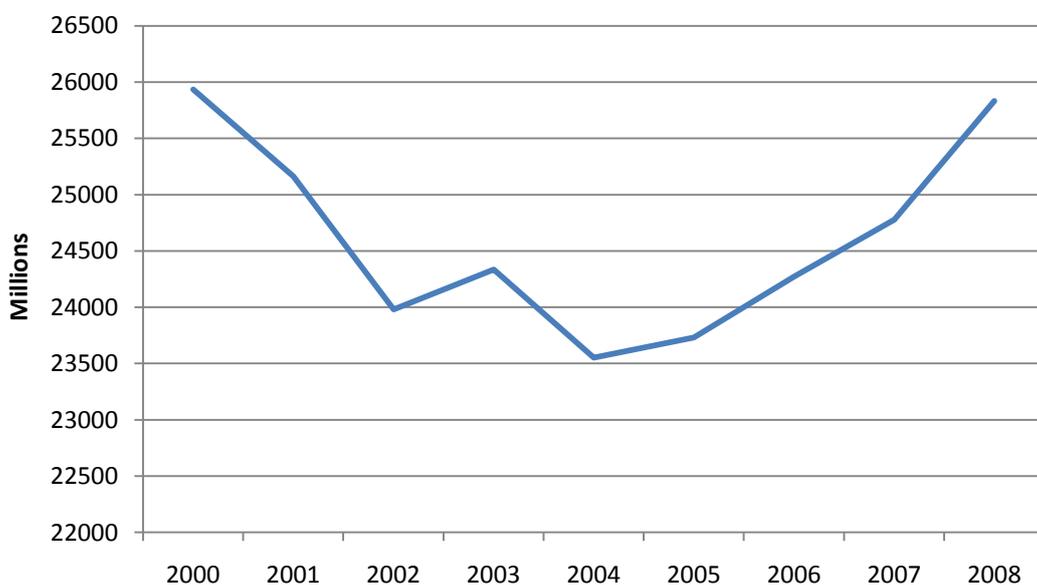
¹⁵ This data is not included

Figure 3: AMPS data - cigarettes consumption



The NT data is used to generate the official estimates of cigarette consumption in the country. The estimates for cigarette tax revenue are extracted from the annual income and expenditure data, and are then divided by the relevant per cigarette tax for that financial year. This data is then re-calculated so as to be comparable with the AMPS dataset .i.e. in calendar year terms. This is illustrated in figure 4. Interestingly, the level of “legal” cigarette consumption started to increase in 2005 following a consistent decline in “official” consumption levels until then. This could be as a result of the pricing mechanism used within the South African tobacco industry which has shifted from being focused towards price increases (for revenue purposes) to trying to maintain the current market via *lower* price increases (van Walbeek, 2006).

Figure 4: National Treasury - cigarettes consumption



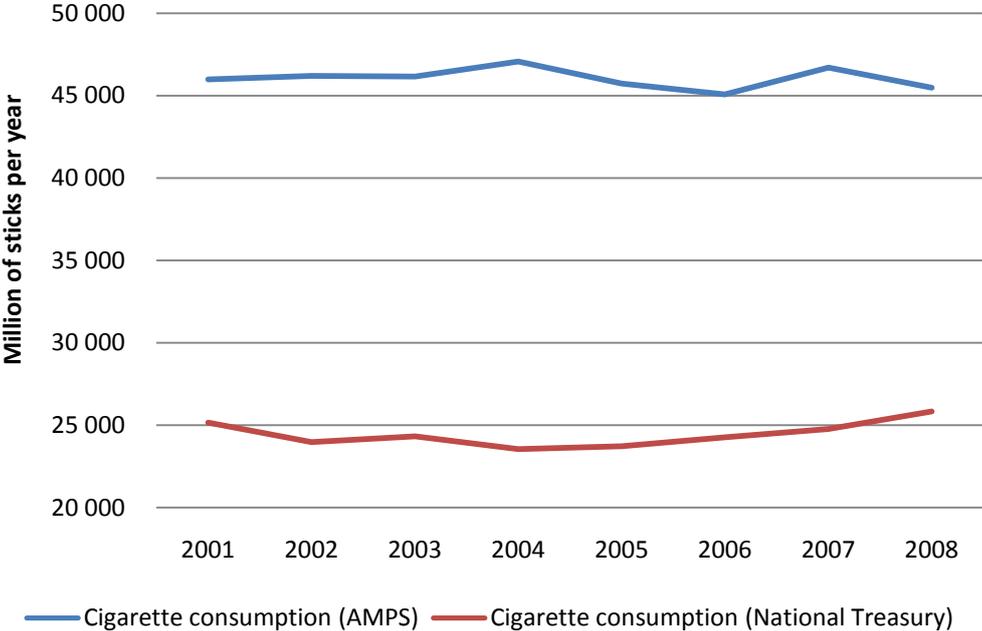
In order to calculate the level of cigarette smuggling for any given year, the following formula is used:

$$Q_S = Q_A - Q_{NT}$$

The level of cigarette smuggling (Q_S) is the difference between the consumption as revealed by the AMPS data¹⁶ (Q_A), and the “official” cigarette consumption level as determined by the National Treasury (Q_{NT}).

The graph below indicates the extent of cigarette smuggling between 2000 and 2008.

Figure 5: AMPS and National Treasury estimates for cigarette consumption



Comparing the official national treasury data with the AMPS data reveals three important conclusions.

1. Current estimates regarding the level of cigarette smuggling are grossly inaccurate. The level of cigarette smuggling between 2000 – 2008 was in the range of 40 to 50 percent of total cigarettes consumed in South Africa.
2. The popular assumption that cigarette smuggling was relatively small, even non-existent prior to 1997, is contestable as the discrepancy between the AMPS data and the data

¹⁶ This is also considered to be the level of overall cigarette consumption in South Africa.

derived from the National Treasury is already substantial in 1997 and 1998¹⁷. However, the data for the periods preceding 2000 is measured differently in the AMPS survey therefore this paper focuses mainly on the 2001 – 2008 periods.

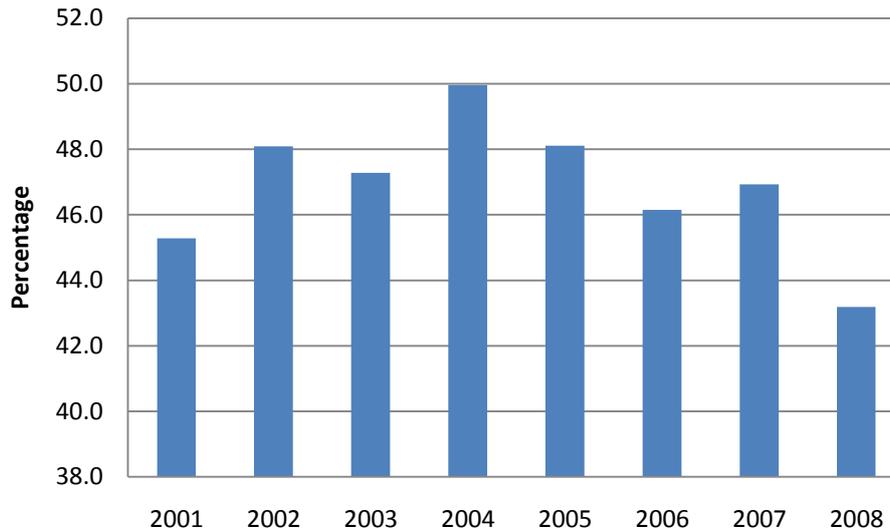
3. The decline in cigarette consumption does not tie in with the increases in cigarette taxes, which were implemented gradually and across a longer timeframe than the timeframe for which the reduction in cigarette consumption was actually experienced, which was between 2000 and 2001. This implies that the reduction in cigarette consumption (and therefore, almost all of the reduction experienced between 1998 and 2008) was most likely as a result of regulation, specifically the Tobacco Control Amendment Act of 1999¹⁸, which was implemented in 2000¹⁹. Although this paper does not attempt to formally model the impact of the Tobacco Control Amendment Act on cigarette consumption, there is evidence from the literature that supports the claim that reduced cigarette consumption can be achieved via bans on advertising, warning labels and restrictions regarding smoking in public and workplaces (World Bank, 1999). Alternatively, the reduction in cigarette consumption during 2000 could also be as a result of increased under-reporting as a result of increased bans on smoking and increased emphasis on cigarettes being an undesirable product (or, at least the effects of cigarette consumption were now perceived to be more undesirable).

¹⁷ The tobacco industry claims that cigarette taxes (or at least, the rise in cigarette taxes) are to blame for the rising levels of cigarette smuggling in South Africa, and that the illegal market for cigarettes was largely non-existent before 1994.

¹⁸ Saffer and Chaloupka (1999) found that regulations which result in the comprehensive banning of tobacco advertising can reduce tobacco consumption. However, the reduction in consumption levels during the sample period used by Saffer and Chaloupka revealed a modest reduction of only 6.9% attributable to the implementation bans on tobacco advertising.

¹⁹ The Tobacco control amendment act of 1999 only came into operation on 1 October 2000, after the AMPS survey was conducted. This explains why the reductions due to the act are experience between 2000 and 2001 and not earlier.

Figure 6: Illegal cigarettes as % of total market



3.2.Potential causes

The existing literature presents a number of conditions required which could result in cigarette smuggling developing and thriving. The most prominent of these being that price differentials across countries create a financial incentive to smuggle. More recently, studies have revealed that the level of corruption is also a determinant of the level of tobacco smuggling. However, in order to substantiate claims of the existence of an illegal market for cigarettes in South Africa it needs to be understood to what extent these conditions are relevant to South Africa. In addition, the evidence above suggests that cigarette smuggling has been a feature of South African tobacco consumption even before the shift in tobacco control policy towards higher excise taxes.

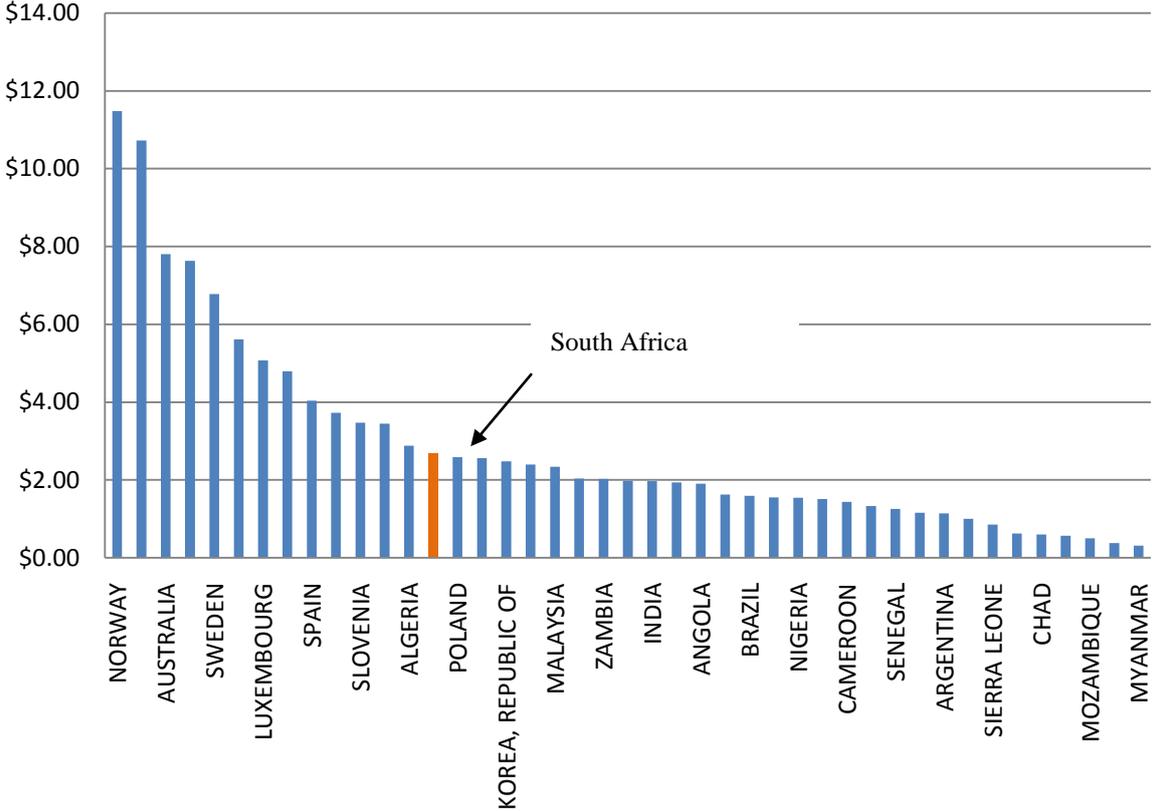
3.2.1.Price differentials

Many studies analyzing the relationship between tobacco taxes and consumption seem to confirm that increased tobacco taxes results in a reduction in tobacco consumption (Loosens et. al.). However, increases in cigarette taxes inevitably increase the cost of cigarettes. One of the main reasons for smuggling, although not the only one, is the difference in price across borders as a result of increased taxation (Saba et. al. 1995). Using data from the US, Goel (2008) found that price factors were indeed the main force behind smuggling between states in the US.

Excise tax-induced cigarette smuggling is one of the main arguments postulated by the legal tobacco industry against increased tobacco taxes in South Africa (Blecher, 2010). Indeed, the continued increases in cigarette prices have resulted in South Africa having one of the highest cigarette prices in the world. In 2007, South Africa ranked 42 out of 163 countries in terms of

the highest cigarette prices²⁰ (in dollar terms). According to the study, the comparative cost of a pack of cigarettes in South Africa is \$2.69. This is significantly less expensive than Norway which boasts the highest cigarette price of \$11.48, but is higher than the average of \$2.47. More importantly, the local price of cigarettes is much higher than that of neighbouring states and other countries which supply our illegal cigarettes²¹.

Figure 7: International comparison of cigarette prices



Source: Tobacco Atlas, 2007

The selling price of cigarettes in South Africa is calculated to be 32% higher than cigarette selling prices in China, 33% higher than in Zambia and a massive 438% higher than the selling price of cigarettes in Mozambique. The vast gap in cigarette selling prices in South

²⁰ This is based on a study conducted by Tobacco Atlas which calculated the cost of 1 pack of Marlboro cigarettes across a number of countries.

²¹ According to a statement released by the South African Revenue Service, the majority of smuggled cigarettes seem to originate from Zimbabwe and China. This is based on data regarding customs seizure and information from previous raids.

Africa and neighbouring states, and other sources of smuggled cigarettes provides support to the argument that a financial incentive exists for cross-border cigarette smuggling.

Table 2: SA cigarette price vs. illicit cigarette source states

<i>Country</i>	<i>\$ price of 1 pack of cigarettes</i>	<i>Price differential % (SA = 0)</i>
South Africa	2.69	0
China	2.04	32
Zambia	2.02	33
India	1.97	37
Zimbabwe	1.16	132
Mozambique	0.5	438

Source: Tobacco Atlas, 2007

3.2.2. Level of corruption

Price differentials between countries often serve as incentive for cross-border smuggling of cigarettes. However, according to Merriman (1999), the ease with which border controls can be evaded in some cases determines the level of tobacco smuggling. Merriman et. al. (1999) went further and tested the correlation between the transparency index (a measure for corruption) and opinions regarding the level of smuggling for various countries. The results of their study revealed that the less corrupt the government, the less cigarette smuggling is perceived to be.

South Africa was ranked the 55th (out of 180) least corrupt country in the world in 2008, based on estimates from Transparency International. The CPI (Corruption Perceptions Index) score indicates the perceived level of public-sector corruption in a country or territory based on the results on 13 independent surveys²². This survey, first conducted in 1996, has become the benchmark for determining the level of corruption that exists within the public sector around the world, and although the index’s value lies in its absolute number it is useful to compare across countries and territories.

Table 3: Corruption perceptions index, 2009 (Select countries)

Corruption Perceptions Index (CPI)

²² Not all surveys are available for all countries.

Rank in 2009		1997	2009
1	New Zealand	9.23	9.4
2	Denmark	9.94	9.3
3	Singapore	8.66	9.2
3	Sweden	9.35	9.2
5	Switzerland	8.61	9
6	Finland	9.48	8.9
6	Netherlands	9.03	8.9
8	Australia	8.86	8.7
8	Canada	9.1	8.7
8	Iceland	-	8.7
37	Botswana	-	5.6
55	South Africa	4.95	4.7
56	Namibia	-	4.5
79	China	2.88	3.6
99	Zambia	-	3
130	Mozambique	-	2.5
146	Zimbabwe	-	2.2

Source: Transparency International

The index looks specifically at public sector corruption in terms of the “ability to be bribed” (demand side). The index also gives an indication of the propensity of countries to want to bribe (the supply side). Therefore, the scores as revealed by the CPI, also reveal a country’s appetite to bribe. Corruption is both the propensity to receive and to offer bribes.

The existence of cigarette smuggling within the South African context therefore has more to do with price increases than the perceived level of corruption as the level of cigarette smuggling in South Africa is relatively large despite a neutral score on the transparency index.

3.2.3. Legacy of Apartheid

The smuggling data presented above reveals a side to the South African smuggling story which was previously unmentioned and in some cases denied. This is that illegal trade in cigarettes existed even before the increased use of tobacco taxes to curb consumption. As mentioned above, the implementation of a comprehensive tobacco control policy only became part of the policy agenda when Nelson Mandela took over as president in 1994.

Due to racial segregation implemented by the National Party during the 1940’s and beyond, there was also substantial economic segregation as well with certain racial groups not having access to formal markets. This resulted in a rapid increase in informal sector activity across a range of industries. Eventually these networks became very efficient. According to Joosens (1999), tobacco smuggling in some cases cannot only be ascribed to price differentials,

various tax regimes and corruption, but also due to existing socio-economic habits. Furthermore, Bump et. al. (2009) states that “(the) Acceptance of cigarettes and smuggling creates a culture of smoking that is hard to regulate or change”. The focus is on the latter concept, that a culture of informal trade in cigarettes is difficult to regulate or change. Tobacco control initiatives – especially sin taxes on cigarettes – needs to take into consideration the significant informal sector already in existence in South Africa before the harsher implementation of cigarette taxes, an informal sector which regularly traded in illegal cigarettes.

The existence of a relatively active informal trade in cigarettes and other tobacco before the implementation of more stringent tobacco excise taxes implied that individuals are in all likelihood able to switch between the legal and illegally traded cigarettes much easier because the networks and structures required to facilitate this type of market had already been in place Joosens et. al. (2009). In essence, economic segregation of the past served as an important “spring-board” for the further development of illegally traded cigarettes.

This is further supported by the large contingent of foreign labour in South Africa. This labour, which comes predominantly from the rest of Africa, has no doubt established additional informal trading networks.

4. Testing the hypothesis

It was already proven earlier in the paper that illegal cigarettes account for approximately between 40 – 50 percent of total cigarette consumption in South Africa. The existence of a black market for cigarettes implies that, although there is a tax on cigarettes, the tax is only levied on the consumers of legal tobacco products and therefore only the external costs derived from the consumption of these cigarettes will be compensated for by the tax. The smuggled cigarettes will continue being uncompensated for external cost

4.1. Hypothesis 1 and 2: The possibility of tax induced substitution effect and resultant externality

According to Ouellet et. al. (2010), quitting is not the only solution available to consumers in the context of increasing sin taxes. Smokers may also resort to consuming alternative products as opposed to smoking. Quellet goes further and discusses the options which include cross-border shopping, less taxed tobacco products²³, cheaper brands or by altering their smoking

²³ As the relatively lower tax rate now makes these products relatively cheaper.

behavior so as to consume more nicotine per cigarette smoked. However, “(T)he most important mechanism might be contraband” according to Quellet et. al. (2010).

There is evidence in South Africa that cigarette substitution exists; however, this substitution is seen to be between different categories of consumption. Again using the AMPS dataset we are able to determine the number of cigarettes smokers in South Africa. Table 6 below shows that there has been no significant decline in the number of smokers in South Africa since 1999. In fact, there were more smokers in 2008 than there were in 1999. This seems to indicate that the decline in cigarette consumption over this period was not as a result of smokers quitting.

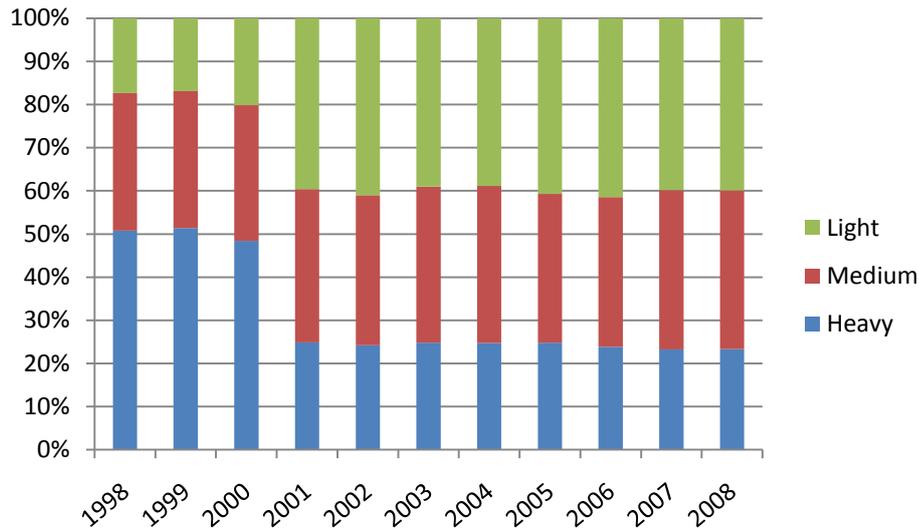
Table 4: Number of smokers in South Africa: 1999 - 2008

Year	Number of smokers
1999	7 169 706
2000	7 719 422
2001	7 110 131
2002	7 305 304
2003	7 142 455
2004	7 297 995
2005	7 115 081
2006	7 214 185
2007	7 558 077
2008	7 336 911

Source: AMPS

In South Africa the evidence seems to be that smoking habits are changing. This is most evident within the “heavy” smoking category which in 1999 heavy smokers accounted for 51.3% of total smokers. In 2008, this percentage was only 23.3. In other words, it could be argued that the same amounts of smokers are now smoking less. During the same period the number of smokers who indicate that they are “light” smokers has increased from 16.9% to 39.9% of total smokers (as can be seen in figure 9). However, this result tends to be counter-intuitive as heavy smokers are the ones who in all likelihood are more addicted to smoking and they are therefore less price-sensitive than the other two consumption categories. A study conducted by Lee et. al. (2008), focusing on the demand for smuggled cigarettes in Taiwan, showed that heavy smokers are more likely to buy smuggled cigarettes in an attempt to save money while simultaneously continuing to consume the same level of cigarettes.

Figure 8: Cigarette consumption in terms of "habit"



Source: AMPS

Therefore, in South Africa the reduction in smoking has come mainly from the heavy consumption group which supports the possibility of tax-induced substitution of legal cigarettes for the illegal versions.

4.2. Hypothesis 3: possibility that the unrecorded market (smuggled) cigarettes are of inferior quality compared to the recorded market

The probability of the externality caused by the consumption of illegal cigarettes exceeding the reduction of the externality of legal cigarettes (as a result of sin taxes) is increased further given evidence that illegal cigarettes are typically of lower quality. Part of South Africa's focus within their broader tobacco control policy has been tobacco product regulation, in other words, controlling/regulating the amount and type of harmful substances found in tobacco products. Smuggled cigarettes in the other hand, do not have to adhere to these strict product content requirements which means that from an externality point of view (early death, effect in health costs), the consumption of illegal cigarettes yields a greater negative externality than the consumption of an equal quantity of legal cigarettes. There is only anecdotal evidence in South Africa regarding the extent to which smuggled cigarettes are of a lower quality (in terms of higher content of addictive and harmful substances). This is supported by statements from SARS (2007) and other experts on tobacco smuggling that this is the case. According to a statement from SARS

“The manufacturing process (of illegal cigarettes) pays little attention to South Africa's health specifications and the cigarettes contain much higher levels of tar and nicotine than what South African health regulations allow for.”

Furthermore, international evidence shows that the tendency for illegal cigarettes to be more harmful than the legally produced version is substantial. Research conducted in the UK showed that on average, counterfeit cigarettes contain much higher concentrations of harmful substances than their legally produced counterparts. In fact, the research shows that counterfeit cigarettes in the UK²⁴ consist of 3 times more arsenic, 5 times more cadmium and 5.8 times more lead than legally manufactured cigarettes. The nicotine, tar and carbon monoxide contents are also significantly higher in counterfeit cigarettes than genuine cigarettes. This is supported by research done in Australia by Aiken et. al. (2009), in which smokers were surveyed²⁵ and asked questions regarding their consumption of illicit tobacco products. The survey results revealed that individuals that current and lifetime consumers of illicit tobacco products report significantly worse levels of mental and physical health than smokers of legal tobacco products.

5. International lessons from tobacco smuggling

Smuggling is by no means a new phenomenon. Many countries around the world suffer from concerns regarding tobacco smuggling.

According to a study conducted by Joosens et. al. (2009), close to 657 billion illegal cigarettes were consumed globally in 2007, which equates to 11.6% of total cigarette consumption. However, it was also found that the extent of cigarette smuggling differs between high and low and middle income countries. Cigarette smuggling as a percentage of total cigarette consumption in high income countries totaled 9.8% and in low and middle income countries totaled 12.1% in 2007 (Joosens et. al. 2009). The level of cigarette smuggling in 2007 is significantly higher than in previous years with the World Bank (2000) estimating that worldwide cigarette smuggling was between 6% and 8.5% of total cigarette consumption in 1995. The difference between 2007 and 1995 may not be that large, however, it is alarming to note that cigarette smuggling increased in lieu of the fact that tobacco control measures and reforms was at its height during this time.

²⁴ This has specific bearing on South Africa and both the customs agencies in South Africa and the UK note that China is a major supplier of counterfeit cigarettes therefore the quality/content of counterfeit cigarettes in the UK and in South Africa are likely similar.

²⁵ The survey was based on illegal cigarettes in Australia referred to as “chop chop”, a variation of local produced cigarettes which are export and then imported illegally back into the country.

China is the country with the biggest illicit cigarette market which trades in approximately 214 billion cigarettes per year²⁶, followed by the Russian Federation with an illegal cigarette market totaling 76 billion sticks in 2004 (Joosens et. al. 2009). Despite the relatively large illegal cigarette market in China it is estimated to represent only between 8 – 10% of the total cigarette market. The United States, the European Union and Brazil make up the remainder of the top 5 biggest illicit cigarette markets. The level of cigarette smuggling internationally puts the South African illicit cigarette market in context. Whereas previous studies placed the size of the illegal cigarette market at no more than 9%, earlier in the paper it was calculated that the illicit cigarette market is probably closer to between 40 – 50 percent of total cigarette consumption. Furthermore, had the illegal cigarette market remained as big as in 2004 (an estimated 23.5 billion sticks), South Africa would have been considered as having the 6th biggest illicit cigarette market in the world.

However, there have been countries that have been able to significantly reduce the incidence of tobacco smuggling. The most popular examples are Canada and the United Kingdom.

5.1.Canada

Canada is one of the countries which has received the most attention regarding its formula for combating cigarette smuggling. In an attempt to reduce cigarette consumption, federal and provincial government departments embarked on an intensive tobacco tax programme which ran from 1982 – 1991. Nationally, this programme resulted in a decline in cigarette consumption of almost 40% (Luk et. al., 2007). At the same time the increase in tobacco taxes significantly widened the price gap along the Canada-US border²⁷. This widening price gap combined created a perverse incentive for tobacco products, especially cigarettes to be brought across the border from the US to Canada. Some of these were products made in the US and sold in Canada, some were made in Canada, and sold in the US (even with the US tax rate being imposed on these cigarettes the cigarettes were still cheaper than those made and sold in Canada) and others were made in Canada and re-exported via the US into Canada. Much of this activity took place along the Akwesasne reserve which straddles Ontario, Quebec and New York State. The percentage of smuggled cigarettes during the 1982 – 1991 periods began to rise steadily and in 1992 it was estimated at 17% and by 1993 it was estimated that 30% of all cigarettes consumed in Canada were illegal. By 1994 the federal

²⁶ This is across various years

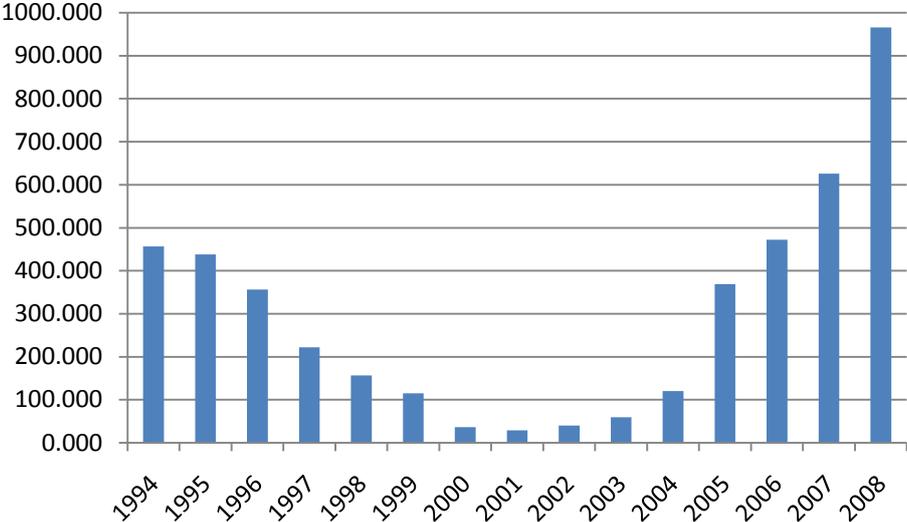
²⁷ Other factors such as a high concentration of Canadians living along the border and relatively weak border controls also played a role.

government estimated that the illegal cigarette market in Canada represented 40% of total cigarette consumption (Luk et. al., 2007).

Then, in 1994, the federal government decided to start cutting taxes on cigarettes. The excise tax was reduced from \$10.36 to \$5.36 per carton of 200. This was followed by further cuts by 5 of the 10 Canadian provinces. The main reason for the reduction in the tax rate was the tremendous growth of the illegal cigarette market.

According to Quellet et. al. (2010), the Canadian government’s strategy to reduce tobacco smuggling by reducing tax rates seemed to have been successful²⁸.

Figure 9: Number of cigarettes seizures: 1994 - 2008



Source: Luk et. al. 2007

However, cigarettes taxes in Canada started rising again in during the early 2000’s. The increase in cigarettes taxes once again led to an increase in smuggled cigarettes to Canada.

The cigarette problem in Canada has re-emerged to such an extent that in 2008 the Canadian authorities released the Contraband Tobacco Enforcement Strategy²⁹. The main aim of the strategy according to the Royal Canadian Mounted Police (RCMP) is “to reduce the availability of, and demand for, contraband tobacco nationwide...” Some of the initiatives within the strategy include, disrupting the supply chain, increased education and conducting research regarding tobacco smuggling. Although it is still too early to determine whether or not the strategy has been effective, however, preliminary results are positive.

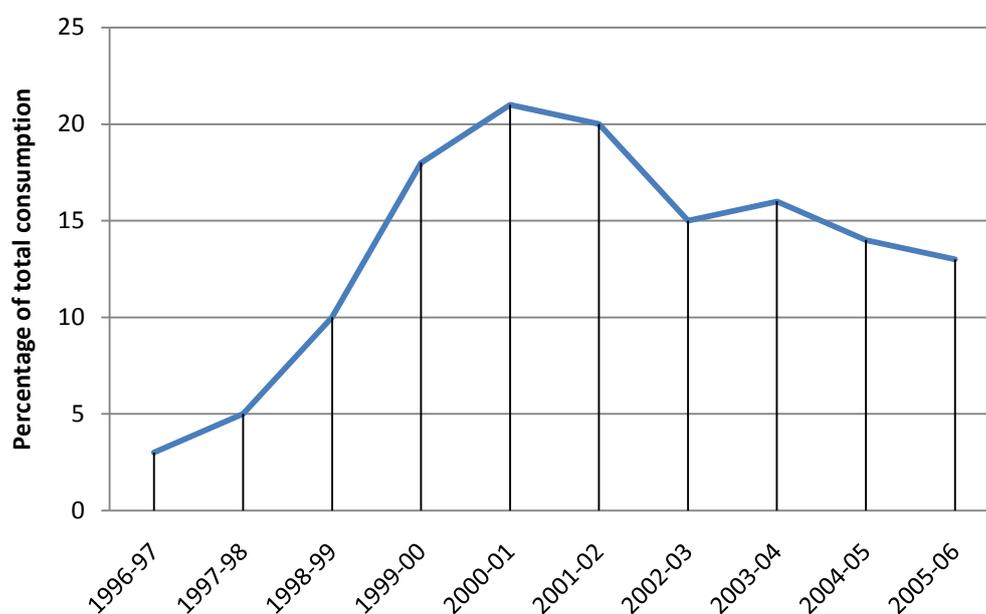
²⁸ As expected, “official” tobacco statistics reveals an increase in cigarettes consumption following the cuts in cigarette taxes.

²⁹ This strategy does not only focus on tobacco smuggling but includes other illicit products as well.

5.2. United Kingdom

Cigarette smuggling has been a major problem in the United Kingdom (UK) for a number of years. After reaching a level of 3% in 1996/97, the illicit market increased to approximately 21% (or 16 billion sticks) of total cigarette consumption in 2000/01 (Joossens and Raw, 2008). The smuggling “mechanism” in the UK differs from that which prevailed in Canada during the middle part of the 1990’s. In the UK a large portion of illicit cigarettes were re-exports (cigarettes which were produced in the UK, exported to other countries and then illegally brought back into the UK), whereas this formed only a part of the illegal market in Canada. Since then the “mix” of illegal cigarettes has changed with hand-rolled cigarettes and new imported brands (not produced in the UK) becoming more prominent (HR Revenues and Customs, 2010).

Figure 10: Illicit cigarettes as percentage of consumption (UK)



Source: Joossens and Raw, 2008

In 2000, the UK government introduced the “Tackling Tobacco Smuggling” strategy which has been reasonably successful (HR Revenues and Customs, 2010). The strategy consisted of a number of reforms but predominantly focused on increased enforcement, increased punishment by offenders and a publicity campaign aimed at raising awareness (HM Customs and excise, 2000). At the time these measures were considered sufficient to reduce the incidence of smuggling without having to cut tax rates³⁰. The implementation of this strategy was

³⁰ In fact, the British government at the time expected to continue increasing excise taxes on cigarettes by 5% real until 2003/2004.

estimated to cost the UK government an extra £209 million for the deployment of additional staff alone. The strategy was highly successful, reducing cigarette smuggling to 16% by 2003/04 (HM revenue and customs, 2006). However, that was not the end of the UK’s cigarette smuggling woes. In response to the UK governments efforts to curb tobacco smuggling, smugglers themselves started changing their behaviour and thereby also changing the nature of UK’s cigarette smuggling market (HM revenue and customs, 2006). Smuggled cigarettes post-2000’s initiative now consisted of more counterfeit³¹ and hand-rolled cigarettes than before. The conterfeit products are much cheaper to produce and the profits to smugglers are much higher. Cigarette smugglers have also become more cunning with regards to how they operate. In response to increased enforement efforts by the UK government smugglers have opted to use varying modes of transport.

Table 5: Cigarette smuggling in the UK: Mode of entry

Points of interception	2007/08 (sticks)
Overseas	726 million
Maritime	505 million
Air ³²	478 million
Inland	91 million
Total	1.8 billion

Source: HM Customs and excise, 2008

Cigarette smuggling in the UK has proven to be a dynamic market which has changed structure a number of times over the past few years. The UK government is constantly trying to improve its systems and policies to best approach the increasing threat of cigarette smuggling.

6. Conclusion

The main thrust of South Africa’s “comprehensive tobacco control efforts has been the use of sin taxes to increase the price and thereby reduce the consumption of cigarettes. However, little attention has been given to the unintended consequences of increasing cigarette taxes on consumer behavior, especially with the emphasis on cigarette smuggling. There have been very few studies measuring the extent of cigarette smuggling in South Africa have been conducted and those that have show that a very small illicit cigarette market exists. However, using a methodology suggested by the World Bank where official cigarette consumption is

³¹ These counterfeit products came mainly from the Far East and to a lesser extent Eastern Europe. In 2007/08 counterfeit UK brands contributed 46% to total illegal cigarettes seized.

³² This includes smuggling via postal services.

compared with cigarette consumption figures as derived from the AMPS data shows that an illicit market of between 40 – 50 percent of the total cigarette market exists in South Africa. The existence of the rather significant level of cigarette smuggling is further explained by some of the factors discussed in the literature, these include: Cigarette price differentials amongst countries and corruption, both which seem to have some significance in the South African context. In addition to the traditional factors, there does seem to be evidence that a significant level of smuggling existed even before the implementation of stricter sin taxes on cigarettes. This is also a crucial factor as it implies that smuggling is more “institutionalized” in South Africa and that the networks and infrastructure required facilitating the illegal activity is more advanced and more commonplace. This also has bearing on South Africa’s tobacco control efforts, although the rise in tobacco taxes is not the cause of tobacco smuggling it does create an enabling environment for cigarette smuggling to exist despite increasing “formalization” of the informal sector in South Africa.

This paper provides evidence that the existence of such a huge illicit tobacco market in South Africa poses additional risks to the negative externality. Firstly, the existence of smuggling implies that taxes have not resulted in a significant decline in cigarette consumption. In fact, anecdotal evidence seems to support the idea of substitution of legal cigarettes for illicit cigarettes (as a result of tax-induced increases in the price of legal cigarettes) argument postulated by this paper. So, the reduction in the negative externality that was supposed to be achieved by the tax-led reduction in consumption is likely to be thwarted. Furthermore, the large illicit market represents a large non-tax paying component. Secondly, international evidence shows that smuggled cigarettes are typically of lower quality than legally manufactured cigarettes thereby potentially causing a greater externality per cigarette consumed than its legal counterpart. Finally, there exists a possible perverse effect of sin tax increases to the negative externality when we combined the substitution argument with the argument that illicit cigarettes are of lower quality in that the total effect could result in a negative externality greater than the original pre-tax level of the externality.

International examples of methods to combat cigarette smuggling seem to suggest that the best course of action is more to address the supply side of smuggled cigarettes than to address the demand side. In the case of Canada and the UK a greater emphasis was placed on increasing border controls and monitoring. In Canada the anti-smuggling efforts also included significant reductions in tax rates in an attempt to address the price differentials which prevailed in Canada at the time. These initiatives have seen moderate success, the incidence of cigarette smuggling has declined in the UK and Canada but there is evidence that tobacco

smugglers are become more innovative in the way they operate forcing the governments in the UK and Canada to be more vigilant in their anti-smuggling efforts. Furthermore, what the case studies of the UK and Canada reveal is that tobacco control policies and policies aimed at reducing the incidence of cigarette smuggling differs from country to country and needs to take into consideration country specific nuances to tobacco consumption and smuggling.

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