

# Saudi Smokers' Behaviors After a 100% Tax Increase

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## Abstract

The aim of this study was to explore smokers' responses to a 100% tax increase on tobacco prices in Saudi Arabia. According to the World Health Organisation, an increase in tax is the single most effective tool to reduce the incidence of smoking. However, using a tax increase in other health areas (especially in reducing alcohol, sugar, or fat consumption) shows that consumers' reactions can differ according to socio-demographic characteristics. 334 participants of different generational cohorts and incomes completed a questionnaire. It was found that only about 10% of the participants actually reduced their consumption to maintain smoking the same brand, 20% changed to cheaper brands, and over 60% made no changes at all to their smoking behaviours. Age and income played very minor roles. Interestingly, a majority claimed that they were considering quitting smoking, the percentages dropping from 75% of the younger respondents to 56% of the older. The research shows that socio-demographic features play a large part in smokers' behaviour changes in response to a large tax increase on cigarettes. It recommends setting up a minimum price for all brands that could discourage young people from starting to smoke.

**Keywords:** tobacco tax, consumption, smokers, price increase, Saudi behavior

## 1. Introduction

Saudi Arabia is a wealthy developing country with more than half of the population between 15 and 35 years old (General Authority of Statistics, 2018). This information is crucial to this study as the average age of smoking initiation is around 19 years with around 9 % of smokers starting before the age of 15 years (Moradi-Lakehadi et al, 2015). Since 2013, many hypermarkets and supermarkets have stopped selling cigarettes; convenience stores and independent small grocers have since then been the leading distribution channels (Euromonitor, 2017).

In some cultures like China, smoking is viewed as a way to start a conversation and is usually used during social gatherings such as wedding ceremonies, new-born baby celebrations, and funeral ceremonies; tobacco products make ideal presents for elders, friends and leaders (Wang, Zhu, Yan et al., 2015). In Saudi Arabia, by contrast, smoking during social meetings is unacceptable and considered disrespectful of others, especially at formal meetings. Moreover, tobacco is seen as a harmful product that should not be consumed—Islam forbids products that can threaten people's health and lives. As in many countries, Saudi Arabia has been aiming to decrease the number of smokers in the population.

Consumer demands on a product are often led by changing the price, where lower prices have a positive effect on demand (Andorfer & Liebe, 2015); if consumers' demands are not met there is always a risk of losing customers to competitors (Javed & Javed, 2015). However, when a popular product is considered injurious to health, governments aim to discourage its use. Discouraging the use of a product is known as demarketing, defined by Kotler and Levy (1971) as: "an attempt to discourage customers in general or a certain class of customers in particular on either a temporary or permanent basis". The Global Adult Tobacco Survey Collaborative Groups (2010), citing the World Health Organization, suggest six demarketing actions to control the negative impact of tobacco and to discourage its use: Monitor tobacco use and prevention policies, Protect people from tobacco smoke, Offer help to quit tobacco use, Warn about the dangers of tobacco, Enforce bans on tobacco advertising, promotion, and sponsorship, and (of interest to this study) Raise taxes on tobacco, giving the acronym MPOWER ("empower"). Citing WHO (2003), the strategy of raising the price of tobacco products through taxation is held to be "the single most effective tool" (Campaign for Tobacco Free Kids, 2018; Couch, 2011; Jha & Chaloupka, 2000; Mayer, 2008; Wetter & Hodge, 2016; WHO, 2019, among many others) in

reducing the demand for tobacco consumption, especially for children and young adults.

The World Health Organization recommends a benchmark tax on tobacco of 70% of the retail price (WHO, 2019, p.4), and many countries have increased the excise on tobacco in varying amounts, for example China increased tobacco excise to 56% in 2015 (Hu, Zhang, & Zheng, 2016), the State average in the US after a 2016 raise was 44.3% (Tax Foundation, 2018), and Australia is planning to increase its tobacco excise by 12.5% annually by 2020 (Hirono & Smith, 2018). Since June 2017 the Saudi government has imposed excise taxes of varying amounts on goods having an adverse impact on public health or the environment (General Authority of Zakat & Tax, 2018). Tobacco products are taxed at 100% of the original price, levied on businesses involved in the manufacture, distribution, use, or sale of goods; these businesses determine the extent to which they pass on the cost of the tax to users (Pomeranz, 2015). The Saudi government's direct revenue from this tax in the first six months was around US\$2bn. At the beginning of January 2018, a Goods and Services Tax of 5% was added.

The aim of this study is to describe how the excise tax affects Saudi consumers' behavior in consuming tobacco products. This study will help Saudi government policymakers to assess the value of the tax as a demarketing tool.

## 2. Literature Review

### 2.1 For and Against Increasing Tobacco Taxes

Guindon, Paraje and Chaloupka (2015), Whitehead, Brown, Riches, et al (2018), and others summarise the many studies concluding that raising the price of tobacco products, especially cigarettes, is beneficial to individuals, society and government. First, it is beneficial to individuals as it discourages young people from starting the habit, encourages current smokers to quit, reduces the number and strength of cigarettes consumed by smokers who do not quit, and deters former smokers from relapsing. Second, by reducing the incidence of smoking, it indirectly benefits society by improving public health, reducing the amount of litter generated by smokers, the possibility of bush fires, and the amount of smoke pollution. Third, as noted in the reviews by Nor, Abdullah, Rampal, & Noor (2013), it benefits governments by increasing revenue. It is a tax generally accepted and approved of by the general public when the extra revenue is spent on improving public health (Callison & Kaestner, 2012; Hirono & Smith; Nor et al., 2013). Moreover, since it is an excise paid by tobacco manufacturers and passed on to smokers via tobacco retailers, it only affects a confined population.

On the other hand, studies have produced counter arguments to the alleged benefits of a tax rise. Inness, Barling, Rogers and Turner (2008) found that the initial effect of an increased price on tobacco lasts for a month, but dissipates by the second month; if smoking reduction or cessation is not seen within a month then it is unlikely to happen—with an addictive product like tobacco, consumers either adapt to the new price or find an alternative (Becker and Murphy, 1988). How price increases are described can have an effect on purchase: Homburg, Koschate and Totzek (2010) found that an increase framed in percentages rather than in absolute terms has a greater negative impact.

Callison and Kaestner (2012) conclude that there is “insufficient justification” for claiming that higher taxes reduce the incidence of smoking among adults, “even young adults”; their data shows that the association between the number of cigarettes consumed daily and the size of tobacco tax is negative, small, and statistically insignificant. Hirono and Smith (2018) acknowledge the “less desirable” aspects of a tax rise on the price of cigarettes and identify four reasons to be “cautious” about its effect on the disadvantaged. Further, the tobacco industry has a high level of strategies to adapt to government taxation changes, such as producing cheaper or smaller cigarettes or packs (Hiscock, Branston, McNeill, et al., 2018) and other strategies (Ross, Tesche & Vellios, 2017; Whitehead et al. 2018). Organizations who wish to control tobacco must be similarly adaptable (Hastings, 2001), making it crucial for them to learn, develop, and apply demarketing concepts and tactics to face the tobacco industry's professional marketing strategies.

### 2.2 Consumer Reactions to Price Increase

Although policy makers appear to agree on the effective use of excise taxation as an anti-smoking measure, identifying the socio-demographic characteristics of smokers who react differentially to this increase will assist in designing suitable additional measures to reduce smoking (Sunday & Mesbah, 2011).

Demand on tobacco is inelastic, which means that consumers need to forego consumption in order to avoid paying tax (Nor et al, 2013). Chaloupka, Hu, Warner, Jacobs, and Yurekli's (2000) review found that the estimated price elasticity of demand on cigarettes in high income countries was between -0.25 and -0.50 and in low to middle income countries it was (more responsively) between -0.50 and -1.00. Other factors than income may play a part. A study of the effect of taxation on the consumption of sugar-sweetened carbonated soft drinks

by Gustavsen and Rickertsen (2011) found that light to moderate drinkers were more responsive to price and income changes than heavy drinkers. This may also be the case when it comes to the tobacco taxation. In Australia, a study by Burton, Clark, Heuler, Bollerup and Jackson (2011) found that heavy smokers bought their tobacco products from outlets that offered a lower price, while lighter smokers used outlets that were more convenient for them. In Japan, a study by Tabuchi, Fujiwara and Shinozaki (2017) found that price increase affected various subgroups but not heavy smokers or the recently unemployed.

Research shows that socio-demographic characteristics such as age, sex, income, and social class play a part in consumer reactions to price increase. Another important factor is the way smokers react, depending on the amount of the tax. Five reactions are possible: boycotting, switching completely or partly to another product, switching to a cheaper brand, reducing consumption, and quitting.

**Boycotting.** A Greek study (Barda & Sardianou, 2010) found a positive relation between consumers' ages and boycotting, where older consumers were more likely to boycott than younger consumers. Boycotting is a temporary reaction to express displeasure and does not last for long. Consumers soon choose another reaction to the price rise.

**Switching to another product.** Switching is either completely or partly switching. Complete switching is switching from smoking cigarettes to smoking a different product: for example, e-cigarettes, cigars, shisha, or e-shisha. Partly switching is when smokers switch to a mixture of two or more tobacco products (known as polytobacco use). The number of polytobacco consumers is relatively high in the United States amongst both young adults and high-school students. Harrell, Syeda, Naqvi, Plunk and Martins (2016) found that more than twice as many youths used two or more tobacco products than cigarettes alone. Silver, Ng, Ryan-Ibarra, Tallie et al. (2017) found that a tax on sugar led consumers to switch from sugared beverages to bottled water.

**Switching to a cheaper brand.** Chiou & Muehlegger (2014) in Chicago found that smokers switched from higher-priced to lower-priced cigarettes to maintain their level of consumption. Similar findings have been found all over the world: in Thailand (Husain, Kostova, Mbulo et al., 2017), the UK (Partos, Gilmore, Hitchman, et al., 2018) and so on. Lower-priced cigarettes are a popular way for cigarette manufacturers to maintain sales and smokers to maintain their consumption, while circumventing the tobacco tax.

**Reducing consumption.** When prices rise, consumers feel forced to buy and consume less (Peine, Heitmann, & Herrmann, 2009). In Germany, a study comparing low-income students with higher-income consumers showed that the students were more likely to reduce smoking than the consumers (Homburg et al., 2010). Smoking among U.S. high school students decreased by 9.4% between 1991 and 2011 as a result of imposing tobacco taxes (Wetter & Hodge, 2016). Higher prices for cigarettes significantly and consistently result in lower consumption, with the highest effect on people on low incomes and people with less education (Jha & Chaloupka, 2000), and particularly on younger people (Jha & Chaloupka, 2000; Van Hasselt, Kruger, Han et al., 2015).

**Quitting smoking.** This reaction is the stated aim of imposing a tax on tobacco, but there is little evidence that the tax achieves its aim.

Apart from quitting, these consumer actions are known as “price-minimising strategies” (Guillaumier, Bonevski, Paulet et al., 2014). The most popular reactions are smoking fewer cigarettes or changing to a cheaper brand (Ruiping, Liping, Wei, Guang & Michael, 2015).

### *2.3 Aim, Research Questions, and Hypotheses*

The aim of this study is to describe how the 100% excise tax affects consumer behavior in consuming tobacco products. This study will help government policymakers to assess the value of the excise tax as a demarketing tool. For that, the research questions are:

1. What reactions do consumers make in response to the 100% excise tax?
2. What are their characteristics?

#### *Hypotheses*

H1: Younger smokers are more likely to change consumption behaviors than older smokers as an effect of the excise tax.

H2: Tobacco consumption decreases as smoking years decrease as an effect of the excise tax.

H3: Lower income groups are more likely to buy lower price cigarettes as an effect of the excise tax.

H4: Lower income groups are more likely to reduce quantity than higher income groups as an effect of the excise

tax.

### 3. Method

This research is descriptive, using a quantitative approach. An electronic questionnaire was used as a tool of data collection. A link to the questionnaire was distributed via social media to reach different people with different demographics such as age, monthly income and other characteristics.

Participants' smoking history and behavior before and after imposing the tax was the focus of this study. A sample of 334 participants was collected. The questionnaire was distributed in July 2018, one year after the tax was imposed. The questions in the questionnaire were closed questions asked about (smoking years, age when started smoking, quantity smoked before and after the tax increase, price of cigarettes smoked before and after tax increase, and response to the increased price).

About 10% of the sample were aged 23 and under, or 46 and over. The great majority (around 90%) were aged between 24 and 45. Around 25% earned less than 6000 Saudi Riyal (1USD= 3.75 S.R) per month, 25% earned more than 15000 S.R., and 50% earned between these amounts. Half of the sample were graduates and third had a diploma or below.

### 4. Results

Around tenth (10%) of the sample started smoking when they were under 15 (elementary school, Grade 9 and below), which matches other studies (e.g. Moradi-Lakeh et al, 2015). Around one third started smoking aged 16 to 18 (secondary school, Grades 10 to 12). The highest percentage of the participants (42%) started when they were university students aged between 19 and 23. Many had been influenced by others: about 33% by school friends, and around 17% by neighborhood friends. Less than a third had smoked secretly for some time.

More than 90% of the participants smoked daily. Two thirds of the participants had stopped smoking for more than one month but started again. Smoking with friends and in the car were the favorite places, with 92% and 72% respectively. Workplaces came third with 61%, and home was the least likely place at only 40% of the sample.

Participants' initial responses to the increased tax are shown in Table 1, in descending order of percentages.

Table 1. Initial responses to the increased price

Response to increased price	%
	N=334
No change	62.9
Changed to cheaper brand	19.2
Reduced quantity to continue smoking same brand	10.2
Quit smoking all tobacco types	3.0
Simultaneously reduced quantity and used other tobacco products	2.4
Quit smoking cigarettes and changed to other tobacco products	2.4
Total	100

When respondents were asked if they were considering quitting smoking, more than two thirds of the sample answered YES. The percentage decreased from 75% among 19–23 year-olds to 56% among the 46+ group, as shown in Table 2.

Table 1. Percentage of smokers intending to quit smoking, by age

Age group	19 –23	24 –30	31 –45	46 +
Percentage	75%	69%	61%	56%

#### *Hypotheses tests*

H1: Younger smokers are more likely to change consumption behaviors than older smokers as an effect of the excise tax.

To test the hypothesis, a Chi-square test was used (Table 3).

Table 3. Chi-square results for H1

	Value	df	Asymptotic significance
Pearson Chi-square	7.819a	3	.050
Likelihood ratio	7.772	3	.051
Linear-by-linear association	1.128	1	.288
N of valid cases	334		

Table 3 shows a significant relation between age and behavior change after the tax was introduced. Younger smokers chose to take action more than older smokers.

H2: Tobacco consumption decreases as smoking years decrease as an effect of the excise tax.

Table 4. Chi-square results for H2

	Value	df	Asymptotic significance (2-sided)
Pearson Chi-square	13.615a	4	.009
Likelihood ratio	13.472	4	.009
Linear-by-linear association	4.336	1	.037
N of valid cases	334		

The Chi-square test results in Table 4 show a significant relation between the number of smoking years and the change of behavior. Consumers who had been smoking for fewer years were more likely to reduce their smoking than long-time smokers.

H3: Lower income groups are more likely to buy lower price cigarettes as an effect of the excise tax

Table 5. ANOVA for H3

M_price	Sum of squares	df	Mean square	F	Sig.
Between groups	26.253	4	6.563	4.070	.003
Within groups	530.561	329	1.613		
Total	556.814	333			

Table 5 shows the results of a one-way ANOVA. Lower income participants more than higher income participants chose to buy lower price cigarettes.

H4: Lower income groups are more likely to reduce quantity than higher income groups as an effect of the excise tax.

Table 6. ANOVA for H4

M_income	Sum of squares	df	Mean square	F	Sig.
Between groups	32.746	3	10.915	6.424	.000
Within groups	560.691	330	1.699		
Total	593.437	333			

A one-way ANOVA (Table 6) found that lower-income participants reduced their smoking more than higher-income participants did.

## 5. Discussion

### 5.1 General Discussion

Given that the government's intention in imposing a high excise tax (100%) on cigarettes was to reduce the incidence of cigarette smoking, the findings of this small study suggest that the government has been unsuccessful. Only 3% participants quit smoking all tobacco products. Almost two thirds of the sample stated that they did not in any way alter their smoking behavior after the tax had been imposed. Another 20% continued

smoking, but changed to cheaper brands, 10% of the sample chose to reduce the quantity in order to smoke the same brand, and 5% changed to other tobacco products. It is interesting that the majority of those who chose to take action were consumers who used to be from consuming the high price (Table 1 indicates how the tax influenced the consumers).

It is very important to investigate the characteristics of those who changed their consumption behaviors (around 40%) as response to the tax imposition, since one of the main goals of this tax is changing smokers' behaviors. Similarly, the characteristics of those who did not act are also important to the policy maker in order to find a more appropriate way to influence their behaviors to quit or reduce consumption.

For the 3% of consumers who reacted by quitting all tobacco types, the age when they started smoking was the key predictor. None of the participants who had started smoking before the age of 18 chose this action. The percentage increased as the age of starting increased. Most of them had also stopped smoking for more than one month before the tax was imposed. It is interesting that monthly income has no effect on this choice in this study.

The choice not to change was made for more than 60% of the sample. The percentage of those who did not act increased as monthly income increased. As well, the percentage increased as age increased: the tax made no difference to 25% of the under-23 group and 75% of the 45-plus group

Of those who decided to change behaviour after the price increase, switching to a cheaper brand was the most popular reaction (20%), practised by all the age, income, education, and smoking years groups. The more years the respondents had smoked, the more likely they were to opt for this change, but at the same time, the majority of those who were under 23 (the youngest age group, with the fewest smoking years) chose to switch to a cheaper brand. A possible reason is that this group had the lowest average income.

The next most popular choice was to reduce quantity in order to smoke the same brand. Interestingly, no one of the sample under 23 years old chose to reduce quantity in order to smoke the same brand, possibly because they were too young to have acquired any brand loyalty. Otherwise, age had no effect on this choice. The lower income, the more likely to reduce the quantity rather than switch to a cheaper brand and smoke more.

Participants were asked if they were considering quitting smoking, and more than two thirds of the sample answered YES. An important finding is a negative relation between the age and quitting intention—the intention decreases as the age increases. This finding is significant, as the policymakers should focus on the age as a key factor in implementing any policy in future.

### *5.2 Hypotheses Discussion*

The findings for H1 showed that younger smokers are more likely to change consumption behaviors than older smokers as an effect of the excise tax, which corresponds to Jha & Chaloupka's (2000) findings. This is an important finding, as half of the Saudi population is aged between 18 and 35, so it may assist policy makers in using appropriate demarketing tools for this age group.

H2 showed that consumers who had been smoking for fewer years were more likely to smoke less than long-time smokers. This finding is important, as the choice of reducing consumption appears effective for young people, who have fewer smoking years.

H3 found that lower income participants chose to buy lower price cigarettes more than higher income participants did. This finding supports Andorfer & Liebe's (2015) finding. Lower-priced tobacco products may attract low-income smokers to maintain their consumption, which could lead to more health problems in the long run due to poor quality products.

H4 found that more lower income participants reduced their smoking quantity than higher income participants. This finding supports Homburg et al. (2010). Increasing prices to a minimum price may help in assisting some smokers to reduce smoking quantity.

All these findings show the necessity of finding ways to help different groups of smokers to quit or at least to reduce consumption.

## **6. Conclusion and Recommendations**

Imposing a tax on tobacco products is a policy that considers cost as the main factor that can change smokers' behavior. However, the price of a packet of cigarettes, even after adding the excise tax, can be considered low compared to other products. For example, an average burger meal costs the same or more than the most expensive cigarette brand. The relatively low price has helped the spread of smoking among school and university students. So if policy makers are serious, it is important that they focus on young consumers. They are the group that is most directly affected by price, as they do not have high monthly incomes, and in some cases,

they have no income at all. Additionally, the relation between the smoker's age and quitting or reducing smoking was found to be significantly related.

Considering a minimum price for all cigarette packet brands appears to be a solution for several reasons.

First, this will discourage new consumers to start at early stage due to the high price. Second, new consumers will smoke a small quantity at first, and there is a high probability they will maintain the same consumption in future—around 60% of this sample kept consuming the same quantity even after the price doubled. Third, it will assist current consumers to reduce consumption instead of switching to cheaper brands, which can often be more harmful. This way appears to be effective as the majority of those who chose to act were from consumers who had become used to smoking high price brands, which shows the importance of higher prices on consumption.

This study like other studies has its limitations. The sample was not chosen randomly, and the findings cannot be generalised. Thus, there is still a great deal of work for future researchers studying the effects of the increased excise tax on tobacco.

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