



making business sense

Estimating the impact of a tax increase on the legal and illicit tobacco markets

A Study Commissioned by the Tobacco Manufacturers' Association
October 2009

centre for economics and business research ltd

Unit 1, 4 Bath Street, London EC1V 9DX
t: 020 7324 2850 f: 020 7324 2855 e: advice@cebr.com w: www.cebr.com

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London, October 2009

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Executive Summary

The report considers the impact on the markets for legal and illicit tobacco products as well as the foregone tax revenue and potential for business failures and job losses from various tax policy scenarios.

Far from being a simple quantity decision, consumers face choices over the type of tobacco to use (cigarettes or hand-rolling tobacco (HRT)) and also the source of their tobacco (legal, cross border or illicit markets). In particular, the market for illicit tobacco attracts consumers because of its low price relative to that of the legal market.

In order to model the impact of a tax increase on the respective tobacco markets we use information on the sensitivity of consumption to changes in price.

Overall we find that a proposed 25 pence tax increase on a 20-pack of cigarettes will increase the size of the illicit tobacco market with negative consequences for public finances, jobs and the profitability of small and independent retailers.

Impact on the illicit market

We estimate that the illicit market share will grow to 17.5 per cent of total cigarette consumption, the highest since 2005. This would see the illicit cigarette market expand in size to 10.4 billion sticks in 2010 from 10.1 billion sticks in 2009. This result assumes that anti-smuggling operations experience diminishing returns. We also highlight evidence from Ireland to support the view that high prices can increase illicit market activity, especially in conjunction with a tobacco display ban.

Impact on the legal (cross border) market

We estimate that the proposed tax change will increase the size of both the cross-border market and the market for hand-rolling tobacco, two close substitutes for UK duty-paid cigarettes. However, due to a similar impact on HRT retail prices, cross-border and illicit sales of this product are also likely to increase.

Wider economic impact

We outline a number of possible consequences of increased illicit market activity. We find that the proposed tax increase threatens the profitability of convenience stores nationwide.

We further estimate that the foregone tax revenue from non-UK duty paid cigarettes and HRT equivalent will rise to £4.2 billion in 2010 from £3.9 billion in 2009. The illicit market will account for around 79 per cent of this lost revenue.

Alternative tax policies

We assess alternative tax solutions such as a tax freeze and inflation-only tax increases and find that these scenarios do not produce adverse effects for the illicit market, public finances and business profitability. Our modelling shows that an inflation-only increase would reduce the size of foregone tax revenue by around £288 million compared to the proposed 25 pence tax increase. Likewise, revenue losses would be £464 million lower in 2010 due to a tax freeze, when compared with the 25 pence increase.

1. Introduction

Purpose

This is a report by the centre for economics and business research ltd on the economic impact of tax increases on tobacco products. The report considers the impact on the markets for legal and illicit tobacco products as well as the foregone tax revenue and potential for business failures and job losses from various tax policy scenarios.

Background

The Government intends to maintain tobacco duties at their present levels when the VAT rate goes back up to 17.5%, these were increased to offset the VAT reduction announced at the 2008 Pre-Budget Report. Our research suggests that the expected VAT increase would add 18 pence to the MPPC price of a pack of 20 cigarettes. Furthermore, it is anticipated that there will be an increase in specific duty from £114.31 per 1,000 cigarettes to £116.60 in March 2010. In combination with VAT and Ad Valorem taxes this would add a further 7 pence to the price pack of 20 cigarettes in the Most Popular Price Category (MPPC).

These proposed tax changes would amount to a 25 pence increase in the tax and price level of a pack of 20 MPPC cigarettes. This above inflation increase is reminiscent of the 1990s 'duty escalator' and it is feared that this will lead to a rise in illicit trade.

cebr has been asked to explore the potential for increases in illicit trade due to this proposed tax rise and assess alternative solutions that help to counter the illicit trade.

Structure

This report suggests that the proposed tax increase will cause an increase in the illicit trade in tobacco products, with negative consequences for the Exchequer, the profitability of small and independent retailers and employment.

Specifically this report shows the:

- **impact on the legal market-** The proposed tax rise will increase the size of both the cross-border market and the market for hand-rolling tobacco, two close substitutes for UK duty-paid cigarettes. However, due to a similar impact on HRT retail prices, cross-border and illicit sales of this product are also likely to increase.
- **impact on the illicit market-** The illicit market share will grow to 17.5 per cent of total cigarette consumption, the highest since 2005. This assumes anti-smuggling operations experience diminishing returns.
- **wider economic impact-** Growth in the size of the illicit market presents a number of adverse consequences. The proposed tax increase threatens the profitability of firms and jobs and will increase the size of foregone tax revenues.
- **alternative tax solutions-** Tax freezes, and inflation-only tax increases do not increase the size of the illicit market. The scope for adverse consequences for public finances, business profitability and jobs is also reduced under these alternative policies.

2. Overview of the tobacco market

This section attempts to describe some characteristics of the tobacco market relevant to the scope of this research. It provides a brief overview and discusses the impact of recent trends in the market.

The size of the market

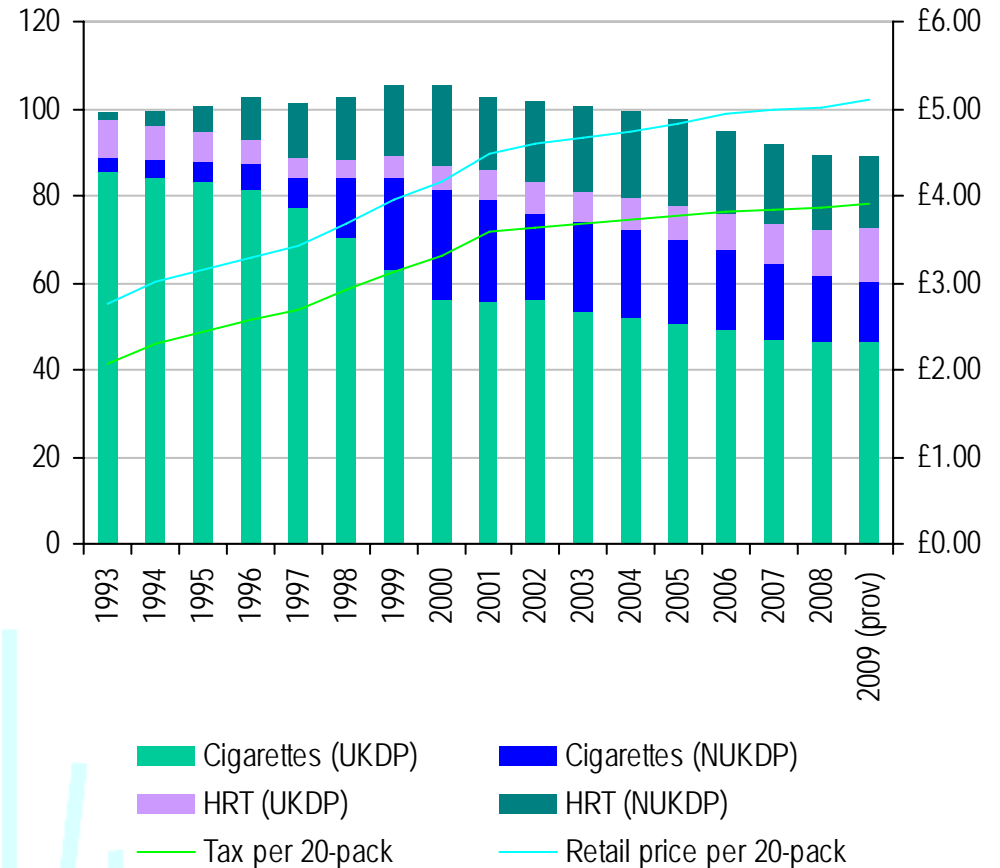
The size of the tobacco market in the United Kingdom has been in a general state of decline for more than a decade. Cigarette and hand-rolling tobacco (HRT) equivalent consumption has fallen from around 105 billion sticks in 1999 to around 89 billion sticks in 2008, while taxes have been rising in line with inflation¹.

Traditionally price increases have been associated with an overall reduction in consumption. However, in recent years this relationship has become more complicated. In response to a greater variety of products and fewer restrictions on the movement of goods, consumers have been known to switch between sources or move to lower priced or lower quality products as a result of price changes.

Far from being a simple quantity decision, consumers face choices over the type of tobacco to use (cigarettes or HRT) and also the source of their tobacco (legal, cross border or illicit markets). The existence of close substitutes allows consumers of tobacco to derive similar levels of utility by switching between markets in response to a change in price.

Evidence suggests that the majority of product switching has historically been a move towards non-UK duty paid product. This was especially prevalent during the 1990s under the 'duty escalator', when tobacco taxes were increased ahead of the rate of inflation.

Cigarette and HRT equivalent consumption, tax and price levels, real prices, 2005=100



Source: TMA

¹ Data supplied by TMA

3. Understanding the illicit market

This section presents a brief description of some features of the illicit market for tobacco in the United Kingdom. A more in-depth description of the illicit market is provided in the cebr report: 'The state and economic impact of the illicit tobacco market'.

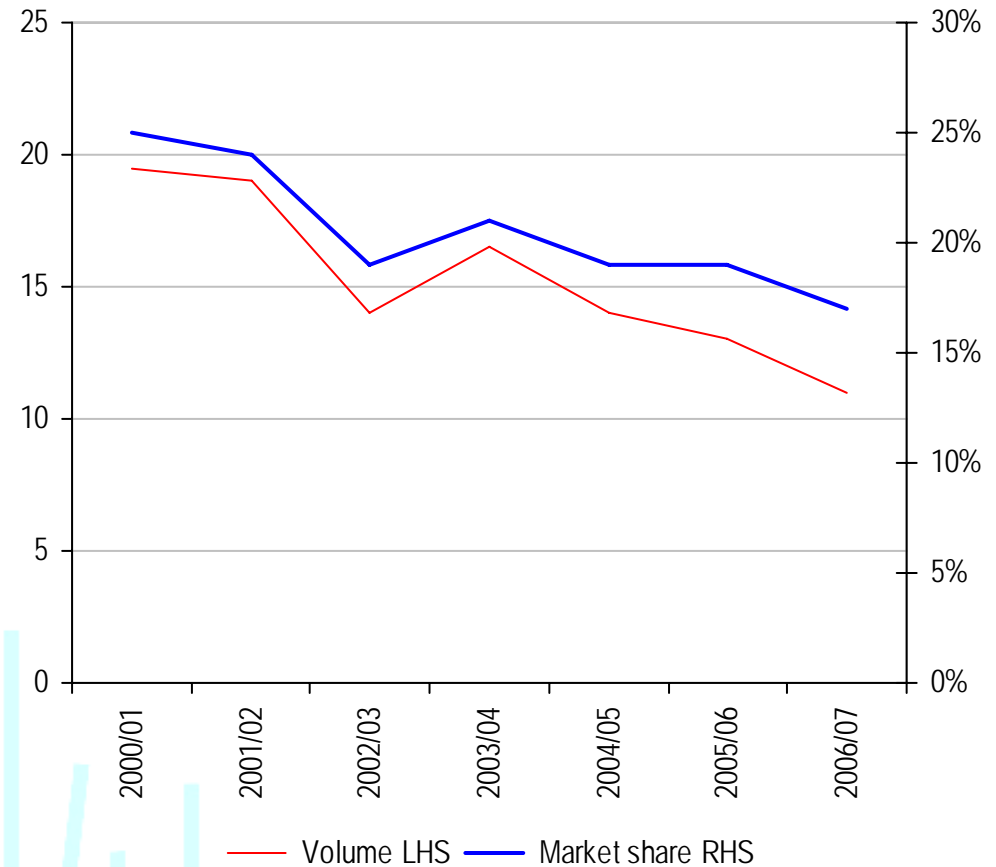
The size of the illicit market

The illicit tobacco market is relatively new to the United Kingdom, with very little illegal activity noted prior to 1993. The relaxation of border controls, the creation of the single market and sharp increases in the real price of legal tobacco products saw the market share for illicit tobacco products rise to around one-fifth of the total market towards the end of the 1990s².

However, the figure opposite shows that the illicit market has been shrinking over the last decade both in absolute terms and relative to that of legal cigarette consumption. This is in part due to successes associated with the government's Tackling Tobacco Smuggling strategy, introduced in 2000 in addition to the policy shift from tobacco duty escalator to inflation only excise increases.

Still, HMRC estimates that the illicit market accounted for between nine and seventeen percent of all cigarette consumption in 2006-07. This represents an associated revenue loss of between £1.1 billion and £2.2 billion, despite having fallen by at least a third since the start of the decade.

Illicit cigarette volumes (billions) and market share, HMRC upper estimates



Source: HMRC (December 2008)

² *Tackling Tobacco Smuggling Together*, HMRC (November 2008)

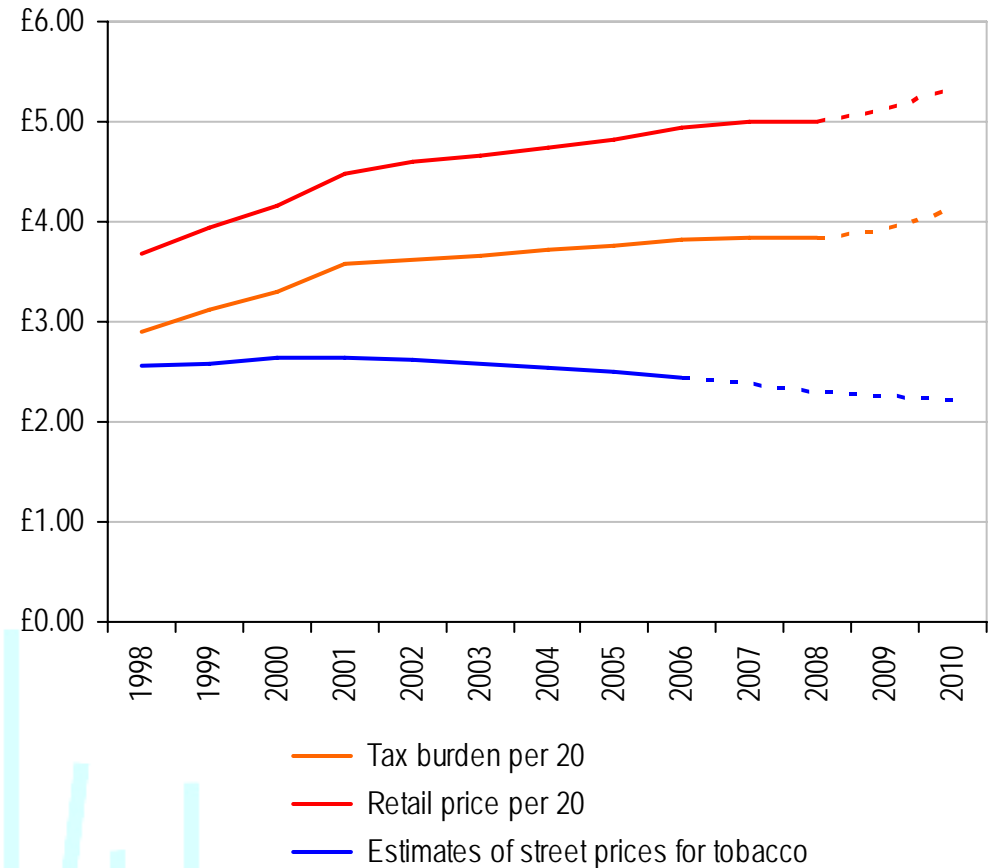
What affects the illicit tobacco market?

The market for illicit tobacco attracts consumers because of its low price relative to that of the legal market. However, in solicitation of the illicit market, consumers face the risk of costs associated with breaking the law as well as some search and psychological costs.

While it has been suggested that the decline in the share of the UK duty-paid segment of the market since 1993 is due 'entirely to the rise in the price of UK duty-paid-cigarettes'³, historically the illicit market has been more responsive to the cross-price effects of a rise in UK duty-paid prices.

The figure opposite shows that while the price of legal cigarettes has increased in real terms over the last decade, the estimated street price of illicit cigarettes has remained roughly constant⁴. As we have shown, the increasing price of UK duty-paid cigarettes has not led to a corresponding increase in consumption of illicit cigarettes in the 2000s. This is in contrast to evidence from the 1990s, which suggests that above inflation tax increases were associated with more illicit trade. This leads us to believe that the reduction in the illicit market could have been even greater were it not for successive real price increases in UK duty-paid cigarettes, which were driven by tax increases.

Tax and price levels for UK Duty-paid and illicit cigarettes, £ per 20, real prices, 2005=100



Source: TMA, Hansard (22 November 2006)

³ *The Demand for Tobacco Products in the UK*, Cullum and Pissarides (December 2004)

⁴ Written answers to questions, Hansard (22 November 2006)

The evidence from Ireland

In contrast to the successes of the anti-smuggling strategy in the United Kingdom, recent evidence suggests that the Republic of Ireland has seen an increase in the prevalence of non duty-paid cigarette consumption over the last three years. Evidence from Irish tobacco manufacturers suggests that 'Ireland did not have the serious non duty-paid problem, including rampant illegal selling, it has today' when the introduction of tobacco display ban legislation was first discussed in 2002⁵. However, since the legislation was first proposed as part of a raft of tobacco control measures, the non duty-paid market share in Ireland has swollen.

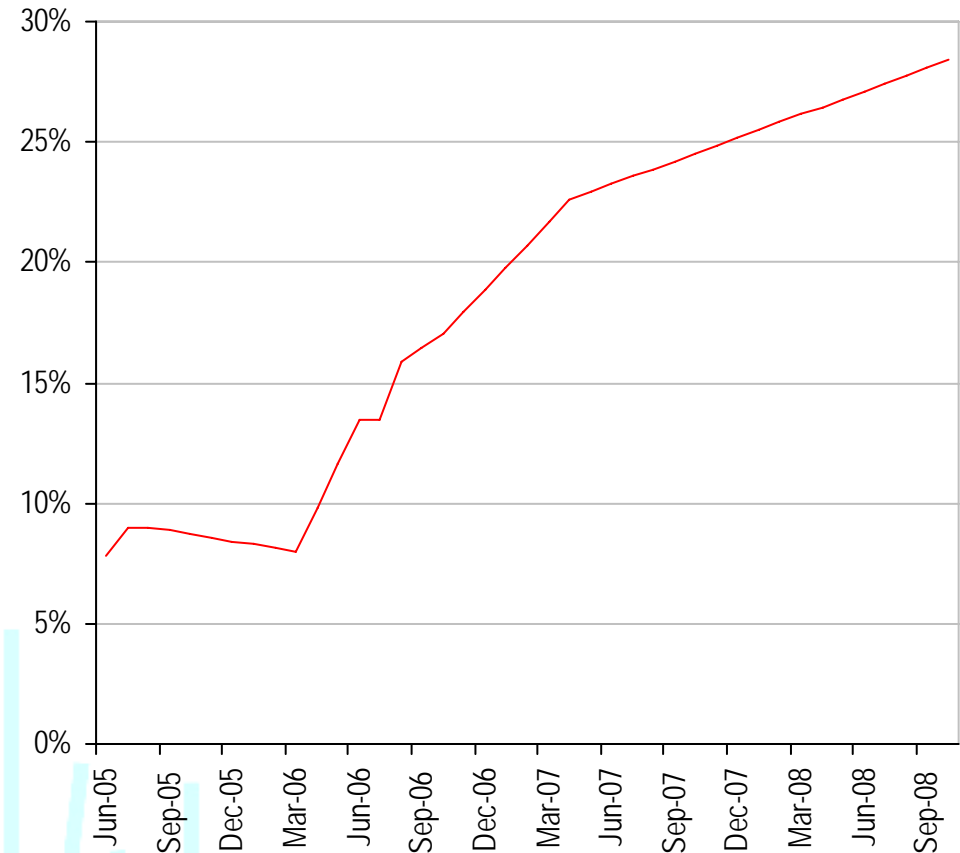
Ireland has the highest price per pack in the European Union at the equivalent of £7.78 with a tax burden of £6.17 per pack⁶. In contrast to the shrinking revenue loss to HM Treasury from illicit tobacco over the past few years, it is estimated that this activity will reduce the Irish government's excise and VAT receipts by over half a billion euro (€528 million) in 2010, up from €387 million in 2008.

The evidence from Ireland highlights the potential for increased illegal activity due to high prices of tobacco products. This danger remains a possibility for all countries considering tax increases in conjunction with display bans.

⁵ *Presentation to Minister for Justice, ITMAC (May 2009)*

⁶ *Excise Duty Tables. Part III - Manufactured Tobacco, European Commission (January 2009)*

Non duty-paid market share in Ireland. Based on pack collection data



Source: Irish Tobacco Manufacturers' Advisory Committee (ITMAC)

4. Impact of proposed tax increase on the legal market

In this section we use the research and historic data outlined on previous pages to forecast the impact of a tax increase on the legal market.

In order to model the impact of a tax increase on the market for legal tobacco we use information on the sensitivity of consumption to changes in price. We draw upon research by Pissarides and Callum (2004), which uses regression analysis to estimate the own-price elasticity and cross-price elasticity of various markets within the overall tobacco market.

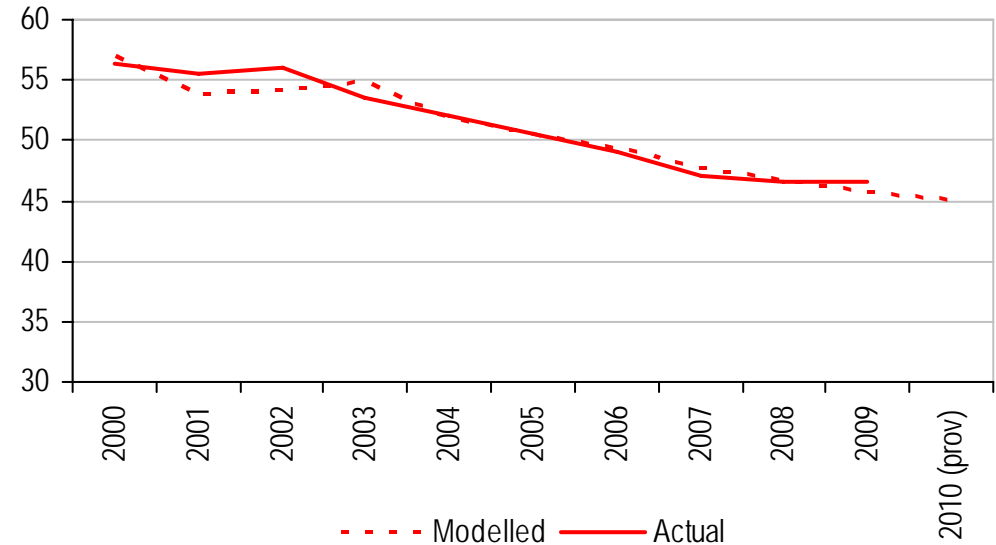
Proposed tax increase on the market for UK duty-paid cigarettes

The above mentioned research suggests an overall price elasticity of (-)1.26 for UK duty-paid cigarettes. This own-price elasticity measures the percentage change in demand of UK duty-paid cigarettes due to an increase in the price of one percentage point. This includes both the impact on the market share of UK duty-paid cigarettes as well as the overall fall in tobacco spending as a result of price increases.

The chart opposite shows the decline in actual cigarette consumption as measured by cebr using data from TMA and HMRC. The chart also presents an estimate of UK duty-paid cigarette consumption when modelled on relative changes in the price of legal cigarettes. The model shows a good fit with the actual data.

The model forecasts a decline in UK duty-paid cigarette consumption to 45.0 billion sticks in 2010, due to a 25 pence increase in tax and recommended retail price (RRP) of a pack of 20 MPPC cigarettes in 2010.

UK duty-paid estimated and actual cigarette consumption, billion sticks



UK duty-paid estimated cigarette consumption. Annual average tax and RRP, nominal prices

	2008	2009	2010
Tax per 20	£4.31	£4.43	£4.69
RRP per 20	£5.64	£5.82	£6.09
Consumption (billion)	46.5	46.5	45.0

Source: cebr modelling

Proposed tax increase on the market for hand-rolling tobacco

Hand-rolling tobacco (HRT) is considered to be the closest substitute for cigarettes in the UK duty-paid tobacco market. It is usually cheaper than cigarettes.

HRT accounts for around one third – and growing – of the entire UK tobacco market, but this figure masks significant differences between markets. HRT accounts for around 21 per cent and 54 per cent of the UK duty-paid and non-UK duty paid markets respectively.

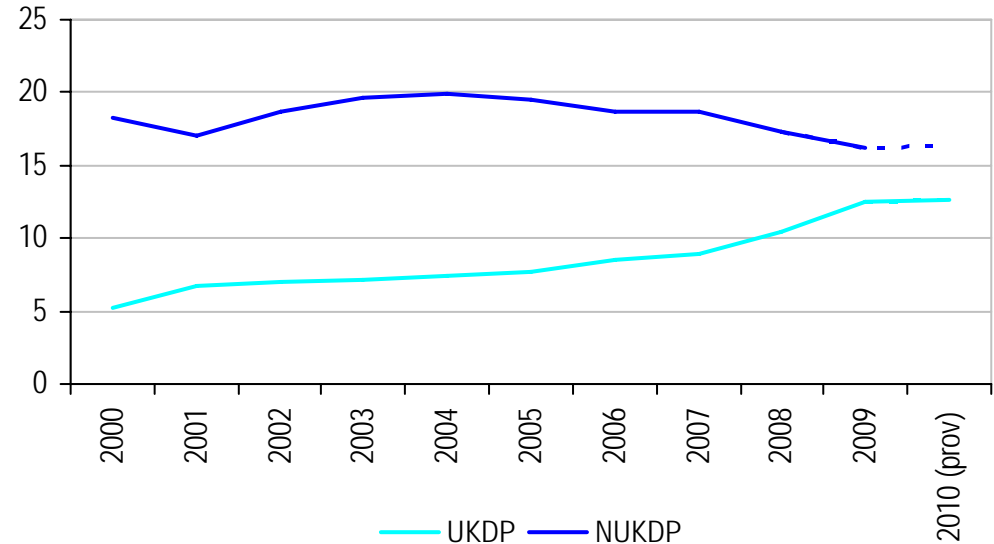
For the purposes of this research we model the change in the total HRT market due to a change in the price of UK duty-paid cigarettes. Whilst HRT duty is also expected to increase in 2010, data limitations prevent us from capturing the responsiveness of the illicit HRT market to price changes.

Again we draw upon research by Callum and Pissarides (2004) and use a cross-price elasticity of 0.38 for HRT. Research shows that HRT has a smaller absolute cross-price elasticity value than both illicit and cross-border cigarettes, which indicates less substitutability between HRT and UK duty-paid cigarettes relative to the non-UK duty paid market. However, this single cross-price elasticity fails to capture the significant difference between HRT markets.

The figure and table opposite show relatively small increases in the respective HRT markets as a result of a 25 pence tax and RRP increase in UK duty-paid cigarettes in 2010.

*Due to data limitations 2010 increase estimates are simply split pro rata between UKDP/NUKDP

HRT consumption, billion CSE



HRT estimated consumption, billion CSE. Annual average tax and RRP, nominal prices

	2008	2009	2010*
Tax per 25g	£3.78	£3.87	£4.09
RRP per 25g	£5.75	£5.92	£6.14
UKDP	10.50	12.50	12.62
NUKDP	17.25	16.25	16.41

Source: cebr modelling, using a standard coefficient of 0.4 to translate a gram of HRT into a 'cigarette stick equivalent' (CSE)

Proposed tax increase on the cross-border market

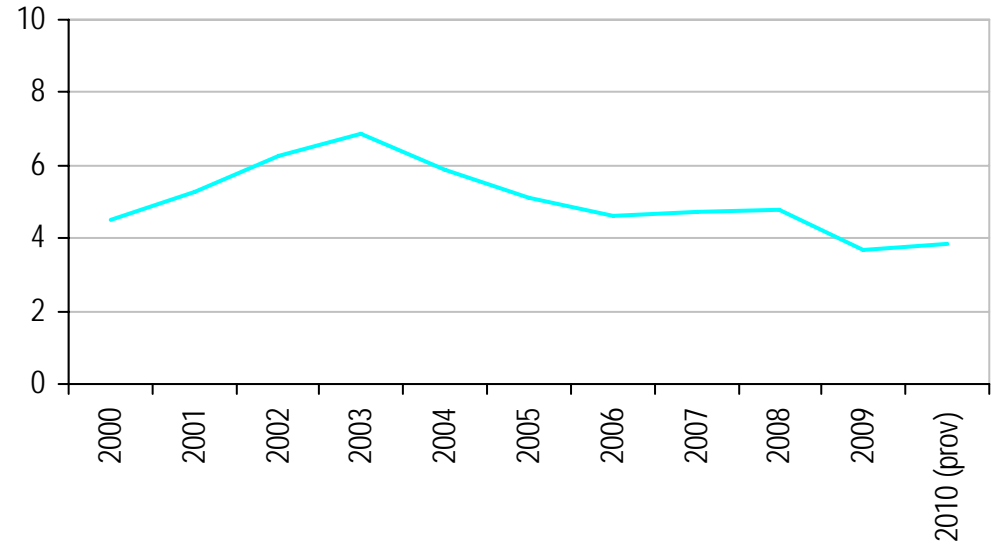
The relaxing of European borders and prevalence of low cost travel has increased the ability for UK consumers to purchase cigarettes legally overseas. HMRC estimates that this market accounted for around eight per cent of cigarette sales in 2006-07, the most recent year of data⁷. Duty-free purchases are included in our definition of the cross-border market.

Pack swap survey data suggest a recent decline in the non-UK duty paid market share in 2009. This may be due to fewer consumers travelling abroad during the economic downturn and the weakness of sterling reducing the affordability of purchases abroad. Using these data and the historic trend rate of growth, we estimate that the cross-border market will shrink to 3.7 billion cigarettes in total for 2009.

The research by Callum and Pissarides (2004) shows that cross-border consumption is the most responsive out of the three cigarette substitute categories (HRT, illicit, cross-border) to changes in the price of UK duty-paid cigarettes. Applying the cross-price elasticity estimate of 1.74, we estimate a 4.4 per cent increase in cross-border consumption in 2010 due to a 25 pence increase in tax and RRP in UK duty-paid cigarettes.

⁷ *Measuring Indirect Tax Gaps – 2008*, HMRC (November 2008)

Cross-border consumption, billion cigarette sticks



Estimated cross-border and NUKDP cigarette consumption, billion sticks

	2008	2009	2010
NUKDP (incl. Cross-border)	15.0	13.8	14.2
Cross-border	4.8	3.7	3.8

Source: cebr modelling

5. Impact of proposed tax increase on the illicit market

In this section we use the research and historic data outlined on previous pages to forecast the impact of a tax increase on the illicit market.

Estimating the counterfactual

Estimating the impact of the proposed tax increase on the illicit market is more complicated than estimating the impact on the legal market. This is due to the influence of additional factors such as the government’s tobacco smuggling strategy crowding out the cross-price effects of price increases in UK duty-paid cigarettes.

We have previously alluded to the likelihood that the recent reduction in the size of the illicit tobacco market could have been even greater were it not for UK duty-paid cigarette prices increasing faster than the rate of inflation. In order to calculate the impact of a future price increase we require an assumption as to what would have happened to the size of the illicit market without successive real price increases.

First we calculate the counterfactual size of the illicit market due only to changes in the price of UK duty-paid cigarettes. We use a cross-price elasticity of 1.54, which is the higher of the Callum and Pissarides (2004) estimates. We subtract the annual growth rate in this counterfactual measure from the decline in the illicit market to calculate the annual change in the size of the illicit market assuming no change in real cigarettes prices.

We derive the counterfactual result that the size of the illicit market would have declined by an average of twelve per

cent per year between 2000 and 2006, were it not for upwards pressure from real price increases in UK duty-paid cigarettes.

Strength of the tobacco smuggling strategy

We then require an assumption concerning how well the anti-smuggling strategy will work in the future. We produce three scenarios listed below.

1. **Continuing action scenario-** The tackling tobacco smuggling strategy continues to work as well as previously, decreasing the illicit market size by 12 per cent per annum before the effects of price changes
2. **Central scenario** – the rate of reduction is cut in half every year owing to diminishing returns to anti-smuggling activity as the market approaches zero
3. **Threshold scenario** – Anti-smuggling operations produce no further declines in smuggling activity. The illicit market responds only to changes in the price of UK duty-paid cigarettes

Scenarios for annual reduction in illicit market size before price effects

	2007	2008	2009	2010
Continuing action	-12%	-12%	-12%	-12%
Central scenario	-12%	-6%	-3%	-1%
Threshold scenario	0%	0%	0%	0%

Source: cebr assumptions

Proposed tax increase on the illicit cigarette market

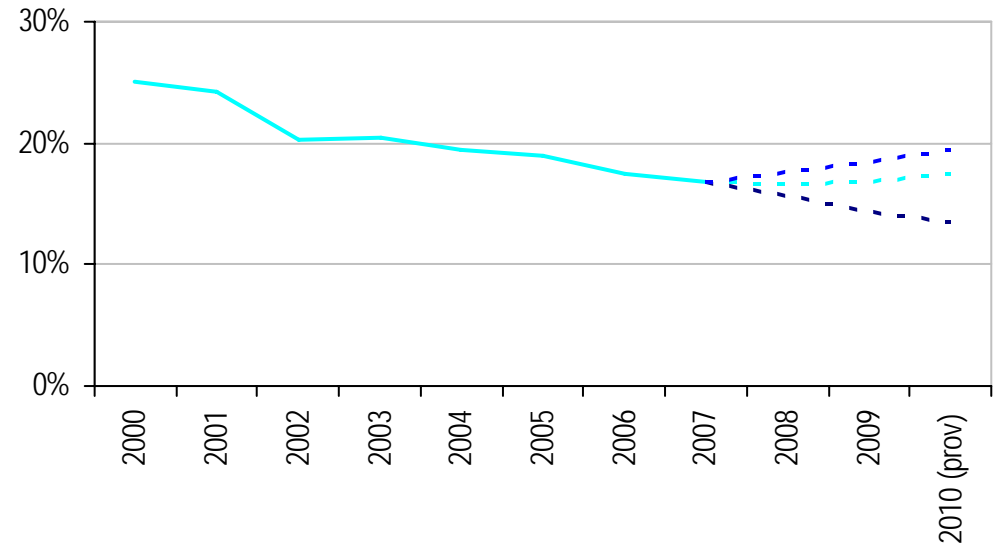
The scenarios presented above are used in conjunction with the proposed 25 pence increase in the tax and RRP of UK duty-paid cigarettes.

The figure opposite shows how important the strength of the anti-tobacco smuggling strategy is to the size of the illicit tobacco market. Under the continuing action scenario, the size of the illicit market continues to decline at a steady rate, despite the 4.6 per cent nominal increase in RRP expected in 2010. However, this scenario is considered unrealistic because of diminishing returns to anti-smuggling activity as the size of the illicit market approaches zero.

Under our central assumption, the illicit market share of total cigarette consumption increases to 17.5 per cent in 2010, the highest since 2005. In volume terms, we estimate that the illicit market will increase to 10.4 billion sticks in 2010 from 10.1 billion in 2009 under our central scenario.

The threshold scenario shows an even larger increase in the size of the illicit market. Assuming no additional effectiveness of the anti-smuggling strategy, the illicit market share is brought back to 2004 levels of 19.5 per cent in 2010. While this scenario uses only the responsiveness of the illicit market to changes in the price of UK duty-paid cigarettes, it is considered unlikely due to the government's continued commitment to anti-smuggling operations.

Illicit market share of total cigarette consumption



Estimated size of the illicit cigarette market, billion sticks

	2007	2008	2009	2010
Continuing action	10.8	9.6	8.7	8.0
Central scenario	10.8	10.2	10.1	10.4
Threshold scenario	10.8	10.9	11.1	11.5

Source: cebr modelling

6. Wider economic impacts of proposed tax increase

In this section we develop the research outlined on previous pages to consider the wider economic impact of an increase in the size of the illicit and non-UK duty paid markets

General impact of an increasing illicit market

The prevalence of the illicit market has serious implications beyond the scope of where consumers source tobacco products. An increase in the size of the unregulated, illegal market can create additional problems in the following areas:

1. Diminished impact of tobacco control measures on age, price and labeling
2. Foregone public finance revenue
3. Increased funding for further criminal activity
4. Negative impact on small businesses and jobs
5. Increased counterfeit cigarettes exposing consumers to unknown product ingredients
6. Diversion of public resources away from more pressing social activity
7. Higher prices for legitimate consumers

For the purposes of this research we attempt to quantify points two and six from the list above.

Impact on retail businesses

Small and independent retailers are already challenged by a competitive business environment that is increasingly dominated by large multiple supermarkets. There are good reasons to believe that the proposed tax increase will make this environment even worse, when many small retailers in the United Kingdom are on the brink of failure.

⁸ Estimated from the Annual Business Inquiry Workplace Analysis

Impact on public finances

Tax revenue is a transfer of benefit from tobacco consumers to the general public through the Exchequer. Given the consumption reduction set out on the previous page, part of this transfer will cease, giving rise to an economic cost.

The table opposite shows the estimated foregone tax revenue from non-UK duty paid tobacco markets given an increase in the assumed tax burden for cigarettes and cigarette equivalent of HRT. We further assume the central case scenario with regards to the effectiveness of anti-smuggling operations as previously described.

Our analysis indicates that an increase in the total non-UK duty paid tobacco market to 30.6 billion sticks and HRT equivalent in 2010 will increase foregone tax revenue to £4.2 billion from £3.9 billion in 2009. The vast majority (79 per cent) of this foregone tax revenue is expected to be the result of increased illicit trade in cigarettes and HRT.

Estimated foregone tax revenue from non-UK duty paid consumption, current prices, £ billion

	2008	2009	2010
Illicit cigarettes	2.2	2.2	2.4
Illicit HRT	0.8	0.8	0.9
Cross border market	1.0	0.8	0.9
NUKDP	4.0	3.9	4.2

NB. may not sum due to rounding

Source: cebr modelling

7. Alternatives to proposed tax increase

In this section we explore possible alternatives to the proposed tax increase, such as a tax freeze and an increase with inflation on a selection of the outputs considered in previous chapters

Alternative tax policies

Given the adverse and unintended consequences of a 25 pence increase in tax and RRP highlighted throughout this report, we have dedicated this chapter to show the expected impact of both a tax freeze and an inflation-only rise in tobacco prices.

The table below shows the annual average tax and prices values used to explore the impact of these three scenarios.

Tax and price level of MPPC cigarettes, 2010, £ per 20

	Tax burden	RRP
Proposed change	4.69	6.09
Inflation only	4.52	5.85 +7p from March
Tax freeze	4.43	5.85

Sources: cebr assumptions and modelling

Impact on the cross-border market

Following the same central assumptions as outlined in the previous exercise and allowing only for a change in prices we find that only under the proposed tax increase of 25 pence, do the cross-border and non-UK duty paid markets increase in size.

An inflation-only increase in the level of tax on tobacco products causes the cross-border cigarette market to remain at the 2009 consumption level of 3.7 billion sticks. While a complete tax freeze would continue to reduce the size of the cross-border market. However, as previously demonstrated a tax increase of 25 pence causes the cross-border market size to increase to 3.8 billion sticks.

Likewise, our modelling shows the non-UK duty paid market as a whole will increase to 30.6 billion sticks due to a 25 pence tax increase. Whereas under a tax freeze and inflation-only tax increase, the non-UK duty paid market is expected to continue shrinking in 2010.

Estimated cross-border and NUKDP cigarette consumption, 2010, billion sticks (includes HRT)

	Cross border market	NUKDP
Proposed change	3.8	30.6
Inflation only	3.7	29.9
Tax freeze	3.6	29.4

Impact on the illicit market

It follows from our analysis of the response of the cross-border and non-UK duty paid markets to the three tax scenarios that only the proposed 25 pence tax increase causes the illicit market to grow. This is true under all three scenarios for the future strength of the anti-smuggling strategy.

The table opposite shows that only under two of the nine outcomes in our scenario modelling do we forecast an increase in the absolute size of the illicit cigarette market.

1. Diminishing returns to anti-smuggling operations with a 25 pence increase in tax
2. No additional effectiveness in anti-smuggling operations with a 25 pence increase in tax

The first of these outcomes is our central scenario with a previously announced tax policy. We believe that this is the most likely scenario to bring about an increase in the size of the illicit market for cigarettes.

Sources: cebr assumptions and modelling

Estimated illicit cigarette consumption, 2010, billion sticks

	Continuing action	Central scenario	Threshold scenario
2009	8.7	10.1	11.1
Proposed change	8.0	10.4	11.5
Inflation only	7.6	10.0	11.1
Tax freeze	7.4	9.7	10.8

Comparison between tax policies

The table above shows the estimated size of the illicit cigarette market in 2010 given the three assumed tax policies. The illicit market is expected to be around 7.2 per cent larger under the proposed 25 pence tax and price increase compared to the tax freeze scenario. Similarly the proposed tax and price hike would make the illicit market 3.9 per cent larger than if cigarette taxes and prices were to increase in line with inflation.

Impact on retail business

Repeating the Monte Carlo simulation model to capture the effects of different responses in UK duty-paid consumption to our three price scenarios we find that only the proposed 25 pence increase threatens small businesses and associated jobs. Neither a tax freeze nor an inflation-only tax rise produce adverse consequences for the profitability of small convenience stores. A tax freeze may even add to the profitability of small convenience stores due to the effect on legal consumption. However, we have not attempted to quantify this impact.

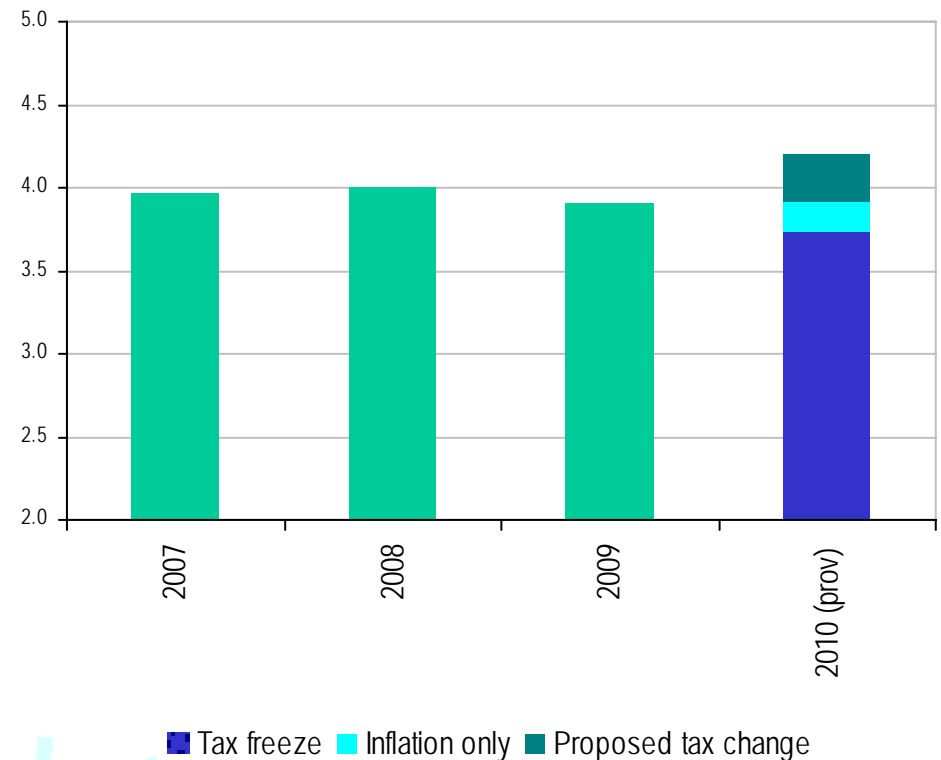
Impact on public finances

The proposed 25 pence increase in tax per 20 UK duty-paid cigarettes is the only one of our three tax policy scenarios to increase the foregone revenue losses to the Exchequer. As demonstrated on previous pages, this proposed increase is expected to cause foregone tax revenues to increase to £4.2 billion in 2010 from £3.9 billion in 2009. However, losses are expected to remain flat under an inflation-only tax increase and continue to fall if there is no nominal increase in tax.

Our modelling shows that an inflation-only increase would reduce the size of foregone tax revenue by around £288 million compared to the proposed 25 pence tax increase. Likewise, revenue losses would be £464 million lower in 2010 due to a tax freeze, when compared with the 25 pence increase.

Sources: cebr assumptions and modelling

Foregone tax revenue from non-UK duty paid cigarette and HRT consumption, £ billion



8. Summary

We have assessed the potential impact of various tax policies on the legal and illicit markets for tobacco products. We have explored the possibility of an increase in the size of the illicit market and the cross-border market due to cross-price effects associated with a rise in the price of UK duty-paid cigarettes.

Overall we find that a proposed 25 pence tax rise on a 20-pack of cigarettes will increase the size of the illicit tobacco market with negative consequences for public finances, jobs and the profitability of small and independent retailers.

Impact on the legal (cross border) market

We estimate that the proposed tax change will increase the size of both the cross-border market and the market for hand-rolling tobacco, two close substitutes for UK duty-paid cigarettes. However, due to a similar impact on HRT retail prices, cross-border and illicit sales of this product are also likely to increase.

Impact on the illicit market

We estimate that the illicit market share will grow to 17.5 per cent of total cigarette consumption, the highest since 2005. This would see the illicit cigarette market expand in size to 10.4 billion sticks in 2010 from 10.1 billion sticks in 2009. This result assumes that anti-smuggling operations experience diminishing returns. We also highlight evidence from Ireland to support the view that high prices can increase illicit market activity, especially in conjunction with a tobacco display ban.

Wider economic impact

We outline a number of possible consequences of increased illicit market activity. We find that the proposed tax increase threatens the profitability of convenience stores nationwide.

We further estimate that the foregone tax revenue from non-UK duty paid cigarettes and HRT equivalent will rise to £4.2 billion in 2010 from £3.9 billion in 2009. The illicit market will account for around 79 per cent of this lost revenue.

Alternative tax policies

We have assessed alternative tax solutions such as a tax freeze and inflation-only tax increases and find that these scenarios do not produce adverse effects for the illicit market, public finances and business profitability.

Estimated cigarette consumption from a variety of sources and foregone tax revenue under different tax policy scenarios, 2010, billion

	Cross border market	Illicit market	NUKDP	Foregone tax revenue (incl. HRT)
Proposed change	3.8	10.4	14.2	£4.2
Inflation only	3.7	10.0	13.7	£3.9
Tax freeze	3.6	9.7	13.3	£3.7



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centre for economics and business research ltd

Unit 1, 4 Bath Street, London EC1V 9DX

t: 020 7324 2850 f: 020 7324 2855 e: advice@cebr.com w: www.cebr.com