

# Smoking in Britain

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*Research Report*

## Prevalence of purchase of illicit tobacco in England and association with cost of smoking: 2012-2013

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### Abstract

**Aims:** This study aimed to assess the prevalence of purchase of illicit tobacco (smuggled and counterfeit) in England, whether it changed from 2012 to 2013 and its association with the amount smokers report paying each day for cigarettes.

**Methods:** Monthly household surveys of representative samples of the adult population in England (the 'Smoking Toolkit Study') were conducted between May 2012 and December 2013 including 7,141 cigarette smokers. Whether smokers purchased illicit cigarettes/tobacco was assessed by whether they reported any purchase cheap from someone in a pub, cheap from street vendor, cheap from trusted source in local area, cheap from friends, or under the counter from small shop. Smokers were asked to estimate weekly spend on cigarettes and numbers of hand-rolled and manufactured cigarettes they smoked per day. Socio-demographic information was also collected.

**Results:** The prevalence of purchase of illicit tobacco fell from 17.1% (95% CI 15.8-18.5) in 2012 to 12.7% (95% CI 11.7-13.7) in 2013. Smokers who reported at least some illicit purchase spend an average of £1.07 per week less (95% CI 0.32- 1.82) on cigarettes adjusting for type of cigarette, age, sex and social grade.

**Conclusions:** In 2013, an estimated 1 in 8 smokers reported purchasing cigarettes or tobacco from a source that suggested it was illicit. This was a decline from the previous year. The weekly cost saving for those smokers averaged just over a £1 per week.

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### Declaration of competing interest:

RW undertakes research and consultancy and receives fees for speaking from companies that develop and manufacture smoking cessation medications (Pfizer, J&J, McNeil, GSK, Nabi, Novartis, and Sanofi-Aventis). JB has received unrestricted research funding from Pfizer.

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**Data access:** The data files and command syntax are available from the journal website.

**Commentaries:** Readers are invited to comment on this article including presenting results of additional data analyses by going to: [www.smokinginbritain.co.uk](http://www.smokinginbritain.co.uk).

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## Introduction

Illicit tobacco consists of counterfeit manufactured cigarettes or tobacco for hand rolling of cigarettes and/or cigarettes or tobacco on which appropriate duty has not been paid [1]. It represents a significant problem because it undermines use of price as a means to deter smoking [2] and involves a significant loss of revenue to the exchequer [3].

Estimating the amount of illicit tobacco being purchased is challenging and there are several methods for achieving it, including comparison between survey estimates of cigarettes smoked and tax receipts, extrapolating from seizures of illicit tobacco, assessments of packs in use and discarded, and surveys of smokers asking about their sources of cigarettes and tobacco [4]. Each method has potential for bias and error and it is helpful to arrive at estimates and judge trends on the basis of multiple methods.

The Smoking Toolkit Study is an ongoing monthly series of surveys of representative samples of the adult population in England [5]. It focuses on smoking and smoking cessation. Since May 2012 every monthly survey wave has included questions on sources of supply of cigarettes and tobacco. These included several sources that may be presumed to involve illicit purchase. While this type of data may be subject to error and bias, it provides convergent evidence and unless the bias changes over time, trend information should be meaningful.

Apart from estimating the prevalence of illicit purchasing, this methodology allows an estimate of the saving in weekly spend from this activity by comparing the weekly cost of smoking in those reporting illicit purchasing with those who do not and adjusting for other potential confounding variables.

Given the above, the research questions addressed in this study were:

1. What was the prevalence of illicit purchasing of cigarettes and tobacco in England in 2013 and how did this differ from the preceding year?
2. What was the difference in weekly spending on cigarettes and tobacco in smokers who purchased illicit cigarettes and tobacco after adjusting for potential confounding variables?

## Methods

*Design:* A series of cross sectional household surveys (the Smoking Toolkit Study).

*Sample:* Data were collected using monthly household surveys of cigarette smokers aged 16 years and above in England between May 2012 and December 2013. The methods have been shown to produce a sample representative of the adult population [5]. See [5] and [www.smokinginengland.info](http://www.smokinginengland.info) for methodological details of the Smoking Toolkit Study). In total 7,141 smokers were interviewed.

*Measures:* Source of purchasing of cigarettes and tobacco was asked by the following item on the survey. Endorsing any of responses 8, 9, 10, 11 and 13 were deemed as illicit purchases.

In the last 6 months, have you bought any cigarettes or hand rolled tobacco from any of the following?

INTERVIEWER: PLEASE CODE ALL THAT APPLY PROBE FULLY: Which others?

1. Newsagent\Off licence\Corner shop
2. Petrol garage shop
3. Supermarket
4. Cash and Carry
5. Internet
6. Pub (behind the bar)
7. Pub (vending machine)
8. Pub (somebody who comes round selling cigarettes cheap)
9. People who sell cheap cigarettes on the street
10. People in the local area who are a ready supply of cheap cigarettes

11. Buy them cheap from friends
12. Buy them from abroad and bring them back with me
13. Newsagent\Off license\Corner shop - "under the counter"
14. Other (please specify)
15. Have not bought any in the last 6 months

Weekly spend on cigarettes was assessed using the following item.

On average about how much per week do you think you spend on cigarettes or tobacco?

Please only answer this if you are fairly confident that you know.

(INTERVIEWER, IF NECESSARY SAY: Please give your answer to the nearest pound, we do not need an exact figure.)

Cigarette consumption was assessed by the following item.

How many cigarettes do you usually smoke?

INTERVIEWER: Please allow respondent to choose how they would prefer to answer.

NOTE: If respondent says they do not smoke every week, choose 'per week' and enter '0' at next question.

Per day

Per week

(Daily smokers) How many cigarettes per day do you usually smoke?

INTERVIEWER: If respondent says 'Don't know', encourage them to give their best estimate

How many of these do you think are hand-rolled?

INTERVIEWER: If respondent says 'Don't know', encourage them to give their best estimate.

(Non-daily smokers) How many cigarettes per week do you usually smoke?

INTERVIEWER: If respondent says 'Don't know', encourage them to give their best estimate

How many of these do you think are hand-rolled?

INTERVIEWER: If respondent says 'Don't know', encourage them to give their best estimate.

Data were also collected on demographic characteristics (age and gender), social grade.

*Analysis:* A variable was created, scored as 1 if respondents endorsed any of the illicit purchase responses and 0 otherwise. The proportions of respondents reporting any illicit purchasing, and the proportions who endorsed each illicit source, together with the 95% confidence intervals, were calculated for 2012 and 2013. Data were weighted only to estimate the prevalence and assess the trend across time. Data were weighted using the rim (marginal) weighting technique to match English census data on age, sex, and socioeconomic group. A linear regression was undertaken (with the line forced through the origin) of weekly spend on cigarettes and tobacco on to number of manufactured cigarettes smoked per day, number of hand-rolled cigarettes smoked per day, any illicit purchasing, age, gender and social grade. The difference between the adjusted mean with and without illicit purchasing was calculated along with its 95% confidence interval.

## Results

Table 1 shows that in 2013 the prevalence of illicit purchasing was 12.7%, a substantial reduction from 2012 (17.1%). The reduction was driven by a reduction in purchasing under the counter from shops.

*Table 1: Percentages and associated 95% confidence intervals of illicit purchasing overall and from different sources in 2012 and 2013*

<b>Illicit purchase</b>	<b>2012 N=2869 (%, N, CI)</b>	<b>2013 N=4272 (%, N, CI)</b>
Any illicit source*	17.1, 492, 15.8-18.3	12.7, 541, 11.7-13.7
From person in pub	0.6, 18, 0.3-0.9	1.1, 49, 0.8-1.5
Person in street	1.4, 40, 1.0-1.8	1.9, 81, 1.5-2.3
Trusted source in local area	1.8, 51, 1.3-2.3	2.3, 100, 1.9-2.8
Cheap from friends	4.8, 137, 4.0-5.6	5.6, 240, 4.9-6.3
Under the counter in a shop*	11.2, 322, 10.1-12.4	5.2, 224, 4.6-5.9

\*Significant reduction from 2012 to 2013,  $p < 0.05$

Table 2 shows that reporting purchase from an illicit source was associated with an estimated weekly spend of £1.07 adjusting for other factors. Adjusting for other factors, there was an increase in weekly spend across the two years.

*Table 2: Results of a multiple linear regression of weekly spend (£) on cigarettes and tobacco on to illicit purchasing and potentially confounding variables*

	<b>B</b>	<b>95% Confidence interval of B</b>
Any illicit purchase*	-1.07	-1.82 to -0.32
Number of manufactured cigarettes per day*	1.69	1.65 to 1.73
Number of hand rolled cigarettes per day*	0.47	0.43 to 0.51
Age	-0.01	-0.03 to 0.00
Gender (0=woman, 1=man)	-0.33	-0.87 to 0.21
Social grade (1=very low paid, 5=professional)*	-0.24	-0.45 to -0.03
Year of survey*	0.98	0.44 to 1.51

\*Significant predictor,  $p < 0.05$

## Discussion

In 2013, approximately 1 in 8 cigarette smokers reported buying cigarettes or tobacco from a source that could reasonably be assumed to signal that what they were purchasing was illicit. This was a substantial reduction on the figure for 2012. The main source was under the counter from a shop and it was this source that underpinned the reduction across the two years. The mean estimated reduction in weekly spend on cigarettes and tobacco from illicit purchasing was small at just over £1 per week.

The finding of a reduction in prevalence of illicit tobacco purchasing from 2012 to 2013 suggests that it would be useful to examine what might have caused it. A clue might be in the fact that the decrease was only evident in under the counter sales in shops. If there was a concerted national programme to deter such sales, this seemed to be working. However, it could be related to a number of other factors outside of the policy sphere.

There was no assessment of the proportion of purchasing that was illicit; the measure was binary. However, it was possible to estimate the saving to smokers reporting any illicit purchase. The saving of an average of £1 per week reported in this study is approximately 1/20<sup>th</sup> or 5% of the average weekly spend on cigarettes and tobacco, affecting just over 1 million smokers (12.7% of 8.5 million). The estimated loss of revenue from illicit tobacco from other sources is much greater than this [3] which suggests the saving is not passed on to the smoker and that instead there is a very high profit margin on illicit tobacco.

The main limitations of this study were: 1) reliance on self-report which might be expected to underestimate prevalence of illicit purchasing, 2) not having a quantitative measure of the extent of illicit purchasing by individuals, and 3) assumptions linking sources of supply to the presumption of illicit purchase.

## References

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