Illicit trade of tobacco in Australia. A report prepared by Deloitte for British American Tobacco Australia Limited, Philip Morris Limited and Imperial Tobacco Australia Limited

A critique prepared by Quit Victoria, Cancer Council Victoria, March 2011 (updated 2 August 2011)
Summary

On the 1st March 2011, British American Tobacco Australia released a report[1] prepared by Deloitte which purported to quantify growth in the illicit tobacco market in Australia.[2] Deloitte claimed that the size of the illicit tobacco market in Australia is 15.9% a figure widely quoted by tobacco companies and since included in A4+ sized newspaper advertisements aiming to discourage members of the Australian Parliament from supporting legislation to mandate plain packaging.

Methodological problems and a number of what appear to be errors of interpretation of the results of the Roy Morgan Survey—which provided the data for the report– have resulted in a major overestimate of the extent of illicit trade in Australia.

The Government’s National Drug Strategy Household Survey (NDSHS) has also examined use of illicit tobacco in Australia in its surveys conducted in 2001, 2004, 2007 and 2010, and provides a more reliable indication of the extent of use. This survey had a sample size of more than 26,000 respondents in 2010[3] compared with the 949 respondents of the Roy Morgan survey commissioned by British American Tobacco Australia (BATA).

Some expected that use of unbranded tobacco might have increased between 2007 and 2010 following the increase in excise and customs duty at the end of April 2010, which resulted in large increases in tobacco prices. However the NDSHS reports published in 2004, 2007 and 2010 have indicated very low and stable levels of use across the past nine years. In 2010 only 0.3% of Australians used illicit tobacco products on a regular basis (half the time or more), not significantly higher than the 0.2% reported in 2007 and also not significantly different from the 0.4% in 2004. While quite a large percentage of smokers have tried unbranded tobacco at least once (about 24% in 2010), 80% of those who have tried it no longer use it. About 4.9% of smokers report currently using unbranded tobacco in 2010, significantly lower than the 6.1% in 2007. This is substantially lower than the 15.7% of smokers deemed by Deloitte to be currently using unbranded tobacco.

Apart from substantially overestimating the number of smokers currently using unbranded tobacco, the BATA-sponsored report on illicit tobacco in 2010[2] also substantially overestimates the amount that such smokers could be purchasing. The report estimates that those using unbranded tobacco purchased an average of 344 grams on an average of 15 occasions each year (see Table 6.3, p33), making a total of 5,160 grams per year. Given that cigarettes weigh less than one gram each, this quantity would be sufficient to make and smoke between 16 and 20 cigarettes per day. However the National Drug Strategy Household Survey reports make it clear that most smokers who use unbranded tobacco use it only occasionally. The 2010 survey reported that only 1.5% of smokers used unbranded tobacco half the time or more. It appears that Deloitte may have misinterpreted the results of the Roy Morgan Survey, assuming that all the respondents who indicated that they currently smoked unbranded tobacco products in the last year still smoked them currently, and/or that those who still smoked them, smoked them almost exclusively.

Estimates of use of other forms of illicit tobacco such as contraband or counterfeit cigarettes included in the Deloitte report could only be speculative given that many people would not know whether what they were purchasing was counterfeit or not. Low price may not be an indication of contraband stock given that some brands are substantially cheaper than others and because tax-paid cigarettes can be subject to heavy discounting.

The National Drug Strategy Household Survey shows quite definitively that the vast majority of smokers who have ever used illicit tobacco no longer use it, and—of those who do still use it—it most used it only occasionally. Data about the generally low frequency of use among current users suggests that the size of the illicit market in Australia in 2010 would be about 2–3% of all tobacco used; considerably smaller than the 15.9% widely touted by the tobacco industry.
Methodology

The Deloitte report released on the 1st March 2011[2] is more polished than the PriceWaterhouseCoopers report on Australia’s illegal tobacco market released in February 2010[4], which was an unconvincing document lacking plausibility, academic rigour and transparency. However, several major problems in the Deloitte report do raise - serious questions about its validity similar to those in the PriceWaterhouseCoopers report.

Transparency

Unlike its predecessor, the Deloitte report does list:

- the response numbers for each stage of its survey
- characteristics of sample and
- numbers of responses and confidence intervals surrounding data.

However, it fails to indicate the wording and sequencing of questions asked of respondents and most crucially, the sub-samples of respondents to whom various questions were asked. This affects the validity of estimates of the number of users and amounts of illicit tobacco used ... the two key factors which drive the estimate of the amount of illicit trade.

Sampling

The report states:

“This initial sample comprised of 9,206 identified people. However after allowing for natural sample attrition, 949 respondents completed the survey, none of whom participated in the survey previously used in the 2009 Report.” p 20

However Appendix 1 indicates that of the 2,422 people who remained in the sample, after the sample quotas were filled (6,115) and people answered the phone and accepted the call and completed the interview (2,348), **a huge 59% of respondents were then screened out** because they did not live in the major capital cities or were not between the ages of 18–64. Why did people outside the capital cities and those older than 64 need to be screened out at all if the sample quotas had already been filled in Step 2? 1

Note that 949 represents a **response rate of only 25%**, much lower than that achieved in surveys commissioned by the Government, and almost certainly a non-representative sample.

Calculation of the extent of illicit trade

The Deloitte estimate of the size of the market is based on estimates of the number of smokers who report using illicit tobacco multiplied by an estimate of how often tobacco was purchased and in what quantity. While this seems reasonable at face value, the question of how many smokers use illicit tobacco is quite complex.

Estimation of the number of smokers who smoked illicit products in the past year

The report is coy about reporting percentages of people who have used each form of illicit tobacco product in the last year. The Executive summary states that 15.4% (sic) of survey respondents acknowledged purchasing unbranded illicit tobacco but figures on prevalence of use appear nowhere in the text of the main document and the percentage of smokers using illicit tobacco products is not clearly labelled in Figure 11, p24. Table 6.5 on page 34 states that 15.9% of all tobacco users in Australia have used illicit tobacco products in the past year. Table 6.3 states that 15.7% of smokers smoke unbranded tobacco, which represents 98% of the 15.9%.

1 Given that smoking rates are much lower in those over 64 (and among those 15 to 18 years), why was the estimate of the numbers of smokers who purchase illicit tobacco products in the total population based on the prevalence of use among those 18-to-64 years of age rather than on the prevalence among the whole population?
Data from the Government’s recently released National Drug Strategy Household Survey (sample size >26,000, about one-fifth of whom were smokers and response rate > 50%) shows a quite different picture. While a large percentage of smokers have tried unbranded tobacco at least once (around 24% in 2010), 80% of those who have tried it no longer use it—see Table 1. About 4.9% of smokers report currently using unbranded tobacco in 2010, significantly lower than the 6.1% detected in the 2007 survey. This is substantially lower than the 15.7% of smokers deemed by Deloitte to be currently using unbranded tobacco.

Table 1. Responses to the question to those 24% of smokers who have ever used unbranded loose tobacco, “How often do you smoke this type of tobacco?”

<table>
<thead>
<tr>
<th></th>
<th>Of current users of unbranded tobacco</th>
<th>Of current smokers who have ever used illicit</th>
<th>Of all current smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently use every day, some days or only occasionally</td>
<td>100%</td>
<td>20.5%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Have used it but no longer use it</td>
<td>n.a.</td>
<td>79.5%</td>
<td>19.0%</td>
</tr>
<tr>
<td>Have never used unbranded</td>
<td>n.a</td>
<td>n.a</td>
<td>76.1%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100.0%</td>
<td>100%</td>
</tr>
</tbody>
</table>


Estimation of the frequency of purchase

The Deloitte report provides no information on the patterns of frequency of use found in the Roy Morgan Survey.

Was the average number of times that people had purchased illicit tobacco in the past year based on responses of all people who used in the past year or just those who regularly used unbranded products? It is difficult to judge this without knowing the sequencing and ‘jumps’ in the questions asked. For instance, were all respondents who had purchased in the last year asked “how many times did you purchase”? Or were the people who reported smoking unbranded products in the last year then asked “how frequently would you say you purchased these products?” (Most of the time, Some of the time, Only once or twice) and then only those who smoked most or some of the time then went on to be asked about frequency? If so what percentage of the 15.7% who are reported as having smoked unbranded tobacco products in the last year only smoked them once or twice or only a couple of times in the whole year? Unfortunately—unlike the National Drug Strategy Household Survey which includes the entire questionnaire in its report—no information is disclosed by Deloitte on the sequencing of questions asked and the ‘jumps’ for users who answer ‘yes’ or ‘no’ to certain questions. It seems likely that Deloitte’s estimate of frequency of use may have been calculated using an incorrect denominator—easy to do if people are not used to the output files generated in these sort of public health surveys.

Table 6.3 of the Deloitte report indicates that the smokers of unbranded tobacco purchased an average of 344 grams of tobacco on each occasion they purchased. This means that each purchase would have provided at least 430 cigarettes (allowing a generous 0.8 gms of tobacco per stick) giving a 20-per day smoker almost 24 days’ supply each time they purchase. At the stated average frequency of purchase of 15 times per year, all smokers must have been getting close to 100% of their yearly supply of cigarettes from unbranded tobacco. This means that—for the Deloitte estimate to be correct—of the 15.7% of smokers who reported purchasing illicit tobacco, close to 100% of them must have purchased close to 100% of their tobacco as unbranded product.

Yet in contrast to this scenario, as is patently clear from the findings of the National Drug Strategy Household Survey, the vast majority of smokers who used unbranded tobacco products use them only occasionally.

2 Note that the average reported number of cigarettes smoked per day in Australia is only 14.9, considerably lower than 18, but we allow here for the likelihood that RYO smokers of unbranded tobacco likely do smoke more than average.
Table 2. Responses to question to those who have ever used, "Would you say that when you smoke you...?"

<table>
<thead>
<tr>
<th>Response</th>
<th>% of current users of unbranded tobacco</th>
<th>% of all current smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only smoke this type of tobacco</td>
<td>7.4</td>
<td>0.5%</td>
</tr>
<tr>
<td>Mainly smoke this type of tobacco</td>
<td>8.7</td>
<td>0.6%</td>
</tr>
<tr>
<td>Smoke this tobacco about half of the time</td>
<td>3.1</td>
<td>0.2%</td>
</tr>
<tr>
<td>Smoke this tobacco less than half the time</td>
<td>6.9</td>
<td>0.5%</td>
</tr>
<tr>
<td>Occasionally smoke this type of tobacco</td>
<td>73.9</td>
<td>5.1%</td>
</tr>
<tr>
<td>Have never used unbranded or no longer use it</td>
<td></td>
<td>93%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>


Both the estimate of the average number of purchases and the amount purchased, then, are at odds with the results of the National Drug Strategy Household Survey (with a sample size of more than 26,000 Australians in 2010) which found that—while some 24% of smokers had tried unbranded tobacco at least once in their lifetime—only 4.9% of smokers were still using it on a continuing basis and only 4.5% of smokers used it half the time or more.

So...that's
- 471,000 smokers using unbranded tobacco products, with close to 100% of these using it close to 100% of the time, as estimated by Deloitte
  compared with
- fewer than 165,000 smokers currently using unbranded tobacco products, and only about 50,000 of these using it half the time or more as reported in the NDSHS

...a very large difference.

Based on the findings from the National Drug Strategy Household Survey about frequency of use, it would seem that the illicit market in 2010 must have been about 2–3% of the total tobacco market, a small fraction of the 15.9% estimate for 2010 (see Table 8.1 of the Deloitte report) being quoted by spokespeople for the tobacco industry.

Use of contraband cigarettes

Further uncertainty arises about the estimated prevalence of use of illicit cigarettes. Table 6.3 of the Deloitte report states that 5% of all tobacco users have smoked counterfeit and 5% contraband cigarettes.

While it is reasonably clear that unbranded tobacco is an illicit product, it is not clear in the report how respondents of the Roy Morgan survey were asked to judge whether branded products were counterfeit or contraband. Might some people be confusing discount cigarettes with contraband? While the most popular brands in Australia retail in convenience outlets for about $16.50 for a packet of 25, many cheap imports sell

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3 compared with the 949 smokers in the survey on which these estimates are based
for considerably less. It is very likely that many people who see or purchase such cigarettes would suspect them to be counterfeit or contraband even though they are not: they are simply a lot cheaper!

Another possible explanation for over-inflated estimates of counterfeit cigarettes might be that consumers are inaccurately interpreting small variations in taste of manufacturers’ products as a sign that products are counterfeit. The NDSHS reported that 4.6% of smokers had within the last month purchased cigarettes that tasted or looked slightly different to usual. This is an interesting result, with many possible explanations. A study recently published in the BMJ’s *Tobacco Control* journal found that 41.7% of smokers noticed changes in their regular brand of cigarettes following the introduction of reduced ignition propensity laws in the US state of Massachusetts.[5] Regulations to reduce the fire risk of cigarettes came into force over the survey period in Australia,[6, 7] so it may be that some smokers picked up in the estimate here are perceiving slight variations in the performance of cigarettes resulting from changes in manufacturing procedures required to comply with this legislation.

These kinds of false attributions are particularly likely in an environment where tobacco companies have been speaking frequently in the media about the issue of illicit tobacco. At best the estimates of use of contraband cigarettes are a guess. In any case they make up only 10% of the total estimate of the size of the illicit tobacco market, 90% of which Deloitte estimates comprises unbranded tobacco.

**Application of an estimate from a capital city sample to a nation-wide market**

A further source of overestimation results from the application of an estimate of use of illicit tobacco products found in the large capital cities (the population of which make up 67% of the total) to the entire population. On what basis can rates be assumed to be the same outside major capital cities as within given that use among regional Australians was not measured? Could it not be that use of illicit tobacco is concentrated in the larger capital cities? If this is so, then does it not follow that the estimates of current use from this survey would be highly inflated if applied without any adjustment to the whole population? It should be noted that unpublished data from the National Drug Strategy Household Survey in 2007 suggests that the rates of use of unbranded tobacco products were in fact 17% higher among smokers living in the major capital cities than they were in the rest of the country, and that rates of use were 56% higher in smokers in Melbourne and Sydney than they were among smokers in the rest of the country.

**Validity of conclusions**

Possible overestimates of the *numbers of people* using counterfeit and other contraband products, together with serious questions about the validity of estimates of *annual amounts purchased*, casts serious doubt on the resultant estimates of the amount of illicit tobacco being purchased in Australia.⁴

Even if the estimated amount of product being purchased were valid, a further problem with the report lies in the significance of reported changes from 2009 to 2010.

First, the stated standard error for estimates of prevalence in the 2010 Roy Morgan survey is 3.2%, meaning that the reported increase in the percentage of people who reported purchasing illicit tobacco products from 12.3% (+/-???) in 2009 (CI not stated) to 15.9% (+/-3.2%) in 2010 could have occurred by chance.

The authors make much of the supposed increase in illicit trade from 12.3% to 15.9% of the legal market, but even if the estimated volumes were valid (and, as indicated above, one must seriously doubt whether they are)—and, even if the estimated increase based on the sample did reflect the actual increase across the whole population—the increase in illicit consumption as a percentage of total consumption (illicit plus legal) would have been much lower, more like 2.7 percentage points.⁵

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⁴ A further problem is that the estimates of amounts of counterfeit and contraband products appear to be added and yet surely counterfeit cigarettes as a category overlap with the category of contraband cigarettes—some contraband cigarettes are counterfeited, others are not; some counterfeit cigarettes are contraband and some could be sold with tax paid.

⁵ An additional problem is evident with the estimates. It is stated on page 32 that the total market for legal tobacco products in 2009 was assumed to be 18,142m kgs. But if the estimates of illicit trade were correctly calculated to be 12.3% of the legal market, then that market would have been 19,089m kgs.
It is curious that the total estimated sizes of the markets are not included in Tables 6.4 and 8.1 and that the figures are presented only as percentages of the legal market (light grey). If Deloitte’s estimates of the amount of illicit tobacco and the percentage this represents of the legal market are correct, then the simple mathematics set out in Table 3 below would suggest that the total market (illicit plus legal in dark grey) must have fallen by almost 2 million kilograms... a massive public health victory!

### Table 3. Illicit tobacco as % of the total legal market versus % of the total market

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Deloitte estimates of amounts of illicit tobacco purchased, '000 kgs</td>
<td>1,827.00</td>
<td>2,348.00</td>
<td>2,680.00</td>
</tr>
<tr>
<td>2. Deloitte estimates of amounts of illicit tobacco purchased, %</td>
<td>6.4%</td>
<td>12.3%</td>
<td>15.9%</td>
</tr>
<tr>
<td>Stated size of legal market, Deloitte page 32</td>
<td>18,142.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Estimated size of legal market derived from 1 and 2 above, '000 kgs</td>
<td>28,546.88</td>
<td>19,089.43</td>
<td>16,855.35</td>
</tr>
<tr>
<td>4. Derived estimate of total market, '000 kgs (1 plus 3)*</td>
<td>30,373.88</td>
<td>21,437.43</td>
<td>19,535.35</td>
</tr>
<tr>
<td>5. Derived estimate of reduction in size of total market from 2009 to 2010, '000 kgs</td>
<td></td>
<td></td>
<td>1902.80</td>
</tr>
</tbody>
</table>

**Source:** Figures stated in and derived from Table 6.4 and 8.1 pages 33 and 37

Further, while the estimated increase in the level of excise avoided was calculated at around $500m, this was well under the additional (notional) $2b that would be received, by the report authors’ own estimates, given the same rate of duty and assuming the estimate of the legitimate market is correct.

### Misleading presentation

The report and Executive Summary include several misleading figures.

- Figure 8 (pg 18) showing the rates of federal tobacco excise and customs duty seems to imply that the price per kilogram of tobacco is higher than the price per cigarette ... but the scaling of the right hand scale is entirely arbitrary and the lines could just have easily have been drawn together or with the cigarettes shown as the higher set of figures.

- Figures 12 (pg 25) and 14 (pg 27) showing percentages of illicit tobacco sold from each state look as if they are percentages of smokers buying illicit (smokers who buy illicit as a proportion of all smokers in that state) rather than percentages that the state makes of the total figure (smokers in each state who buy illicit as a proportion of all Australian smokers who buy illicit). Of course it is not unexpected that 30% of unbranded tobacco is sold to users in NSW; NSW smokers make up just under a third of the total population of Australian smokers.

- Figure 9 on the distribution of outlets from which illegal tobacco has been purchased (pg22) shows the percentages of those smokers who have purchased illicit products from each individual outlet. However the casual reader might be forgiven for thinking that the percentages represent the percentage of smokers who have ever purchased illicit stock from such outlets.

In all these cases, the data would more accurately be presented as a pie chart rather than a histogram.

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6 Incidentally also a great overestimate as it was calculated on the February 2011 excise rate rather than the somewhat lower rate applicable in August 2010, and the substantially lower rate applicable in February 2010.
Credibility of estimates

On the first page of the report, Deloitte describes itself as providing audit along with tax, consulting and financial advisory services to public and private clients. However, it is not until the final page of the report that it is clear to the reader that this is not in fact an audited report:

“In preparing this report we have relied on the accuracy and completeness of the information provided to us by British American Tobacco Australia Limited, Philip Morris Limited and Imperial Tobacco Australia Limited, information collected through market research by Roy Morgan Research Proprietary Limited, and from publicly available sources. We have not audited or otherwise verified the accuracy or completeness of the information and, to that extent, the information contained in this report may not be accurate or reliable. This is normal practice when carrying out an engagement such as this, but contrasts with an audit.

This report does not contain legal advice. For the avoidance of doubt, the team members preparing this report are not legal practitioners and do not hold a practising certificate from Victoria or interstate.

No one else, apart from British American Tobacco Australia Limited, Philip Morris Limited and Imperial Tobacco Australia Limited are entitled to rely on this Report for any purpose. We do not accept or assume any responsibility to anyone in respect of our work or this Report should it be used by any party or for any other purpose that has not been expressly agreed in writing by Deloitte.”


Notes:

a. The questions in the 2007 National Drug Strategy Household Survey[8] that asked about unbranded products covered both loose cigarettes and tobacco sold in plastic bags (questions 29 to 32), whereas the 2010 question only mentioned unbranded tobacco (questions 31 to 34). While many people will have interpreted the 2010 question as also covering rolled unbranded cigarettes in addition to unbranded tobacco, unfortunately the 2010 figure is not directly comparable to the figure for 2007. The Deloitte reported states on page 25 that cigarettes in packs or cartons made up 60% of unbranded tobacco in 2010, or 1.5 times the % using loose tobacco. Even if no users of unbranded

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[8] The 2007 Survey asked:
D29. Have you seen or heard of unbranded loose tobacco (also called ‘chop chop’ sold in plastic bags or rolled into unbranded cigarettes?
D30. Have you ever smoked it?
D31. How often do you smoke this type of tobacco?
<table>
<thead>
<tr>
<th>Every day</th>
<th>Some days</th>
<th>Only occasionally</th>
<th>No longer use it</th>
</tr>
</thead>
</table>
| D32. Would you say that when you smoke, you…?
| Only smoke this type of tobacco
| Mainly smoke this type of tobacco
| Smoke this type of tobacco about half of the time
| Smoke this type of tobacco less than half of the time
| Occasionally smoke this type of tobacco |

[8] The 2010 Survey asked
D31. Have you seen or heard of unbranded loose tobacco or ‘chop chop’ sold in plastic bags?
D32. Have you ever smoked unbranded loose tobacco or ‘chop chop’ sold in plastic bags?
D33. How often do you smoke this type of tobacco?
<table>
<thead>
<tr>
<th>Every day</th>
<th>Some days</th>
<th>Only occasionally</th>
<th>No longer use it</th>
</tr>
</thead>
</table>
| D34. Would you say that when you smoke, you…?
| Only smoke this type of tobacco
| Mainly smoke this type of tobacco
| Smoke this type of tobacco about half of the time
| Smoke this type of tobacco less than half of the time
| Occasionally smoke this type of tobacco |
cigarettes were picked up in Q31 in 2010 (which is unlikely), the total prevalence of smokers using unbranded tobacco products half the time or more could be no more than about 2.25%, still substantially lower than the 15.7% estimated by Deloitte.

b. The 2010 survey also asked about awareness of counterfeit cigarettes and whether people had ever picked up differences in taste and packaging (questions 28, 29 and 30). This question would underestimate the extent of use of contraband products in that no questions are asked about intentional purchase of such products. It would overestimate use to the extent that question 28 might predispose respondents to answer in the affirmative on question 29.

c. Tobacco companies may argue that people would underreport smoking of illicit tobacco in a Government sponsored survey. Note however, that both survey sponsors employed the Roy Morgan Company to collect data. Large numbers of people in the NDSHS report using illicit drugs with, for instance, 8.3% of respondents in the 2010 survey admitting to using an illicit drug in the last month. Participants are provided with information about the purpose of the survey and given credible assurances about confidentiality.

References


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9 The 2010 survey asked in addition

D28. Have you ever seen or heard of counterfeit cigarettes?
D29. Have you ever purchased what you thought was your usual brand and then noticed a difference in the taste or packaging
D30. How often has this occurred?
Once a month
Once every six months
Once a year.