

**Analysis of KPMG LLP,  
*Illicit tobacco in Australia:  
2014 Full Year Report, 30<sup>th</sup>  
March 2015***

Critique prepared by Cancer Council  
Victoria, 5–15<sup>th</sup> May 2015

## Executive summary

KPMG LLP's report released on the 4<sup>th</sup> May 2015 estimates that use of illicit tobacco in Australia has increased from 13.5% in 2013 to a 'record high' of 14.5% of total tobacco consumption in Australia in 2014.[1] KPMG LLP estimates that while use of illegal manufactured cigarettes has declined by 17%, use of unbranded 'chop-chop' tobacco (either loose or pre-rolled into cigarettes) has increased by 43%. The report uses the same methodology as previous reports[2-4] and is subject to the same limitations as have previously been identified in critiques of previous reports.[5-7]

KPMG LLP's estimate of use of illicit unbranded tobacco lacks basic face validity.

If 18% of smokers are buying an average of almost 4000 grams of unbranded chop-chop tobacco every year as stated on page 50 (and an average cigarette made with chop-chop tobacco weighs between 0.6 gms and 0.75 gms as stated on page 56), then each smoker must be smoking an average of between 5,300 and 6,660 chop-chop cigarettes per year. That's between 14.5 and 18 chop-chop cigarettes per day, well above the national average total number of (any type of) cigarettes per day reported smoked by all current smokers. For this to be correct, one would have to assume that almost *all* chop-chop smokers almost *exclusively* smoke chop-chop. And yet all government-funded surveys suggest that the majority of users of chop-chop tobacco use it only occasionally.

*Is KPMG LLP seriously suggesting that every fifth smoker one encounters in Australia will be smoking a chop-chop cigarette?*

This basic logic check indicates some fundamental problem in the calculations.

Beyond the suspicion of a fundamental error in the calculations, any estimates of prevalence and extent of use of illicit tobacco from this study are likely to be inflated because they are based on data from a non-random sample of respondents opting into and completing a very long internet survey of little interest to anyone not a user.[7] Estimates of total use across the market are also likely to be inflated due to the crudity of the calculation process.

The second component of KPMG LLP's estimate of total use of illicit tobacco in Australia is an estimate of the use of illicit manufactured cigarettes. The firm's estimates of use of contraband cigarettes (including cheap white cigarettes and also counterfeit cigarettes<sup>1</sup>) are also likely to be inflated to the extent that packs disposed of outdoors are more likely to be those used by younger people (who are more likely to report any purchase of packs that are non-compliant with Australian packaging legislation), international students and other visitors to Australia, all of whom are more likely to be carrying packs not produced for the Australian market.[7]

The report provides no persuasive evidence to support tobacco industry assertions that use of illicit tobacco has been affected by the introduction of plain packaging. Opponents of plain packaging predicted that use of illicit tobacco would increase because packs would be easier to counterfeit, however the prevalence of counterfeit packs found in the industry-funded surveys of discarded packs has fallen substantially. In fact on page 42 it is stated

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<sup>1</sup> Considered a separate category in the KPMG LLP and other tobacco industry reports on illicit tobacco

**“Through to the end of 2014, there has been no evidence of counterfeit plain packaging cigarettes.”**

The overall estimated prevalence of non-domestic cigarette packs detected in discarded pack surveys increased sharply between 2012 and 2013, however the 2012 survey was conducted by a different survey company and the methodology, exact sample areas or protocols may have varied in seemingly minor ways that had major consequences. Further, the estimate of the prevalence of illicit cigarettes in discarded pack surveys did not continue to increase between 2013 and 2014. While not highlighted in the report, in fact the figure for Half Year 2, 2014 was almost **60% lower** than the figure for 2013 (half years 1 and 2 combined, Table 5.2, page 30).

There is no doubt that some smokers in Australia use illicit tobacco at least occasionally. However seizures of illicit tobacco, levels of consumption reported in government-funded consumer surveys and levels of willingness to sell illicit tobacco in retail audits all suggest that the extent of use is substantially lower than suggested by the KPMG LLP reports. The relative price of contraband and chop-chop tobacco compared to tax-paid factory-made cigarettes (as usefully documented on page 23) no doubt contributes to use of illicit tobacco among price-sensitive smokers.

KPMG LLP’s report is highly professionally produced, and the overall approach appears to be well-conceived. However, this critique raises concerns about the representativeness of the industry-funded surveys on which estimates are based, as well as grave doubts about the way that results of such surveys are being analysed.

## 1. Analysis of estimates—illicit unbranded tobacco

The total amount of unbranded tobacco that KPMG LLP estimates to be illicit is not credible: it lacks basic face validity. If 18% of smokers were buying an average of almost 4000 grams of unbranded chop-chop tobacco every year as stated on page 50 (and an average cigarette made with chop-chop tobacco weighs between 0.6 gms and 0.75 gms as stated on page 56), then each smoker would be smoking between 5,300 and 6,660 chop-chop cigarettes per year. That's between 14.5 and 18 chop-chop cigarettes per day, well above the national average of 13.8 cigarettes reported smoked per day in Australia's largest national survey.[8] For KPMG LLP's estimate to be correct, one would have to assume that virtually all chop-chop smokers virtually exclusively smoke chop-chop (i.e. almost every cigarette, almost every day), and yet it seems unlikely that 100% of users would be able to access or would wish to use this illegal product 100% of the time. And in any case, all published peer-reviewed papers and published reports of results of government-funded surveys suggest that the majority of users of chop-chop tobacco only use it occasionally.[8, 9] [10] This basic logic check indicates some fundamental problem in the calculations.

The KPMG LLP report states (on page 36 and in Figure A1 on page 50) that in 2014 HY 2, 18.0% of regular smokers reported purchase of unbranded chop-chop tobacco up from 16.9% in 2013 HY 2. The report does not state in either of these graphs whether these figures relate to purchases *in the last year* or to *ever* purchases. The graph at the top of column 2 on page 33 suggests that the figures relate to "ever smoked unbranded tobacco." And yet the questionnaire does not include a question asking have you ever smoked unbranded tobacco: it only asks about purchase. So

... is the figure used in the key calculation of population use on page 50 derived from the question "*Have you purchased unbranded tobacco in the last 12 months?*" If so, why is this not stated in the row heading in the table and in the title of the figure at the top of page 36? And why is exactly the same figure (17.7%, the average of 17.3% for HY1 and 18.0% for HY2) labelled as 'Ever smoked unbranded' tobacco' in the title on the graph at the top of page 33?

Or

... is the 18.0% figure used in the key calculation of population use generated from the question "*Since you turned 18 have you ever purchased unbranded tobacco?*"

If this is the case, then have the average amounts purchased and the average frequency of purchase stated in the tables taken into account the 'zero' values for the large number of people that would have purchased since they turned 18 years old but not have purchased in the last year? This seems unlikely given that the average amount of tobacco purchased per annum (3,966 grams which, as stated above, equates to between 5,000 and 6,600 cigarettes per annum or between 14.5 and 18 cigarettes per day) is higher than the total average daily reported consumption of 13.8 cigarettes per day for all Australian adult smokers.

Could there be an error in this calculation? The Appendix listing questions at the back of the KPMG LLP report suggests quite a complex survey, with numerous skips. So, for instance, someone answering 'no' to the question 'since you turned 18 have you ever purchased unbranded tobacco' may not have been asked subsequent questions about chop-chop but

may instead have been directed to skip to the questions about contraband cigarettes. Smokers who responded negatively to the question 'do you purchase unbranded tobacco for your own use currently' may have been directed to the questions about previous use. Did KPMG LLP perform statistical analyses on a data file provided by Roy Morgan Research? This seems unlikely as no confidence intervals are reported, and no statistical tests appear to have been conducted on changes in prevalence estimates over time. Or did KPMG LLP conduct its analysis based on a report from Roy Morgan that would have included hundreds of tables summarising the responses to the several hundred questions in this survey? Each table would have had different total numbers of respondents—i.e. different denominators—and it would not have been possible from such a report to determine which respondents responded positively and negatively to each individual question. Perhaps the 18.0% figure used in the key calculation in the KPMG LLP report was in fact *not* the percentage of smokers who had purchased in the last year but rather the *percentage of current users of chop-chop tobacco who had purchased in the last year*. Or perhaps it was the *percentage of smokers who have ever used chop-chop tobacco since they were 18* who had purchased in the last year.

In addition to the suspicion described above that a fundamental error may have occurred in the treatment of the survey data, further concerns can be raised about the representativeness of the Roy Morgan internet survey as a means of establishing prevalence. The Roy Morgan Establishment Panel and the internet surveys conducted using this panel provide a very useful resource for clients seeking a more in depth understanding of consumer behaviour. But it is the company's Household Survey rather than this internet survey which is more appropriately designed to establish population prevalence of particular behaviours. In other words, even appropriately analysed data on the extent of use of illicit unbranded tobacco from the Roy Morgan internet survey are likely to generate inflated estimates because they have been collected from a non-random sample selected by a process in which respondents opt in to an internet survey. Problems of representativeness are detailed in the Section 1.1 below.

Finally, the averages included in the KPMG LLP report appear to be calculated with insufficient precision. This problem is spelled out in more detail in Section 1.2.

## 1.1 Problems of representativeness of survey

Participants in this survey are not randomly selected. They are 2,017 smokers of 13,115 people who responded to an e-mail invitation to complete the survey that was sent to 92,527 members of the Roy Morgan consumer research panel. No information is available on whether the 14% of people who responded to the invitation were different in any important respects to those 79,412 people who did *not* respond to the invitation.

The half-year surveys conducted since 2012 have predominantly been drawn from Roy Morgan Research Company's panel of people for whom they have e-mail addresses (including people who have participated in previous door-to-door and telephone surveys and have agreed to provide such e-mail addresses).<sup>2</sup> Participants are paid to complete the survey. The 10,133 people deemed 'qualified' to participate may have been representative of the *demographic* characteristics of the Australian population (page 35), however the 2,017 smokers who ended up doing the survey may nevertheless have ended up being different to the total population of Australian smokers in several important respects likely to increase the likelihood of their using illicit tobacco. For instance,

- No information is provided about the smoking characteristics of either the sample from the consumer panel, or the supplementary samples or the final sample on which the estimates are based. Crucially,
  - No information is provided on prevalence of use of cigarettes hand-made from roll-your-own (RYO) tobacco versus prevalence of factory-made (FM) cigarettes.

Analysis of previously unpublished data from the last four National Drug Strategy Household Surveys conducted by the Australian Institute of Health and Welfare shows that rates of use of unbranded tobacco are more than three times higher among those who smoke both factory-made (FM) cigarettes as well as RYO tobacco compared to those who only smoke FM cigarettes.[11]
  - Similarly, the number of cigarettes smoked per day among smokers in the sample may be higher than average, perhaps because heavier smokers are more likely to be under financial stress (even controlling for income and other demographic factors) and therefore more likely to agree to participate in a survey for which they are paid.

Rates of use of illicit tobacco reported in the National Drug Strategy Household Survey are almost twice as high among heavier smokers (those smoking more than 20 cigarettes per day) than among lighter smokers (smoking ten or fewer cigarettes per day).[11]
- The percentage of participants in the 2014 HY2 Roy Morgan internet survey (about illicit tobacco) who had participated in the same survey (concerning illicit tobacco) in previous half years was not reported.

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<sup>2</sup> Appendix A7 on page 71 of the report reveals that the survey sample is supplemented with 'samples from a set of qualified third-party suppliers'. No information is provided about the nature of these suppliers.

- More than 400 (almost 17%) of the 2,425 people eligible for the survey failed to complete it. The survey is a very long one comprising several hundred questions including more than 160 relating to unbranded chop-chop tobacco alone. Apart from being more likely to suffer financial stress (and therefore more likely to want to qualify for payment for completion of the survey) it is possible that smokers who use some form of illicit tobacco would be more likely to: (a) agree to do the survey once they understood what it was about, particularly if they had done it in previous years and (b) complete it rather than drop out part way through than would smokers who did not use any form of illicit tobacco and would therefore find the questions less personally relevant or interesting.

Suspicion that the Roy Morgan Internet survey may be over-sampling chop-chop users is supported by an analysis of results of similar questions asked in the AIHW's National Drug Strategy Household Survey (NDSHS) which conducted fieldwork over a period which included the month of November when the Roy Morgan internet survey was conducted for HY 2 in 2013. The National Drug Strategy Household Survey interviewed approximately double the number of smokers as were interviewed in the Roy Morgan internet survey in 2013 HY 2. The AIHW has been analysing and publishing results of the NDSHS every year since 1991, with very few instances of errors in reporting identified over the last 25 years.

The figure for the percentage of smokers 'currently smoking unbranded tobacco' in the second half of 2013 for smokers 14 years and over from the National Drug Strategy Household Survey was only 3.6% for those 14 years and over[8] (and 3.3% for those 18 years and over[11]) compared to 8.7% in the Roy Morgan internet survey for smokers 18 years and over (figure top right hand column page 33).[1] While highlighting the fact that the rates of awareness and rates of 'ever use' in the two surveys are very similar (see column 1, page 33), the KPMG LLP report[1] provides no explanation for the discrepancy in this key figure. The KPMG report suggests that respondents are more likely to under-report 'current use' than more distant use. This may be so, however this does not explain why the internet survey is finding a much higher level of current use than the NDSHS when the other indicators of awareness and 'ever use' are similar. The NDSHS is a government-funded survey, however the assurances of anonymity are credible. In any case it is Roy Morgan Research that conducts the National Drug Strategy Household Survey. (That is, Roy Morgan Research conducts both the tobacco company funded internet survey used in the KPMG LLP reports,[1] and the drop-and-collect survey for the Australian Institute of Health and Welfare's National Drug Strategy Household Survey[8]).

- Suspicion that there is an error in KPMG LLP's estimation of the total amount of chop-chop tobacco consumed in Australia are further strengthened when one examines comparable data on *current use* and *prevalence of purchase in the previous year* from other surveys in the same year.

Questions about *purchase* (as opposed to *use*) of unbranded tobacco have not been asked in the AIHW's National Drug Strategy Household Survey in previous years and data generated from questions asked in 2013 were not published due to very low numbers of people responding to these questions.[8] However, analysis of unpublished data from the 2013 NDSHS

data file reveals that only one-third of current users of unbranded tobacco—1.4% of all smokers—reported purchasing any unbranded tobacco in the previous 12 months (CBRC, unpublished analysis). This means that the percentage of Australians deemed by KPMG LLP to have ‘reported purchasing illicit tobacco’ p 36 and deemed by KPMG LLP to be ‘illicit tobacco users as % of Australian tobacco users’, p 50), based on data from the HY2 Roy Morgan 2013 internet survey, was **13 times higher** than percentage of smokers reporting in the AIHW’s National Drug Strategy Household Survey over a similar period in 2013 that they had purchased illicit unbranded tobacco in the previous year.

It is true that the NDSHS only asked the purchase question of current users, however questions about purchases of chop-chop tobacco in the last year were asked of all smokers in the Victorian Smoking and Health population survey conducted by the Cancer Council Victoria in 2013, and these yield estimates of between 4 and 5%,<sup>[9]</sup> still **little more than a quarter** of the figure cited in the KPMG report for Half Year 2, 2013. Once again, no explanation is offered in the KPMG LLP report that might explain the discrepancies in these estimates.

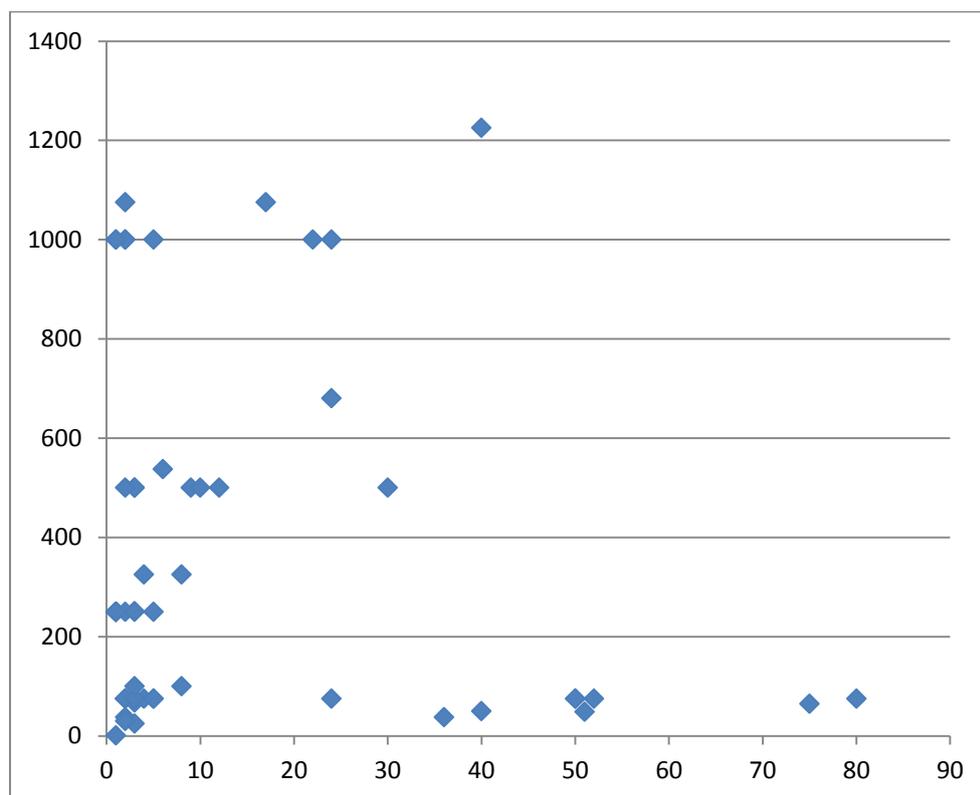
## ***1.2 Inappropriate estimation of average amounts of unbranded ‘chop-chop’ tobacco used per annum***

To obtain its estimate of the average amount of illicit unbranded tobacco used by each user per annum, KPMG LLP simply multiplies the average reported number of purchases with the average amounts purchased across the whole sample. This approach would be justified *if* the relationship between *amount purchased* and *number of purchases* varied in a linear manner, so that those who purchased less frequently tended to purchase large amounts and those who tended to purchase more frequently tended to purchase smaller amounts—see **figure A1** in **Attachment 1**.

No information is provided on the distribution of responses in the Roy Morgan internet survey, but analysis of unpublished data from the National Drug Strategy Household Survey suggests that this assumption does ***not*** hold either for loose unbranded chop-chop tobacco or for unbranded chop-chop cigarettes—see below and **figures A2** and **A3 Attachment 1**. Far from quantity going down as purchase frequency goes up, purchasers of loose tobacco tend to buy similar amounts—250, 500 or 1000 grams—regardless of purchase frequency. Purchase of chop-chop cigarettes tend to buy a carton of 100 cigarettes (weighing 80 grams, much less than the amount purchased by purchasers of loose tobacco). Once again, they tend to buy this amount regardless of purchase frequency.

Figure 1 below plots the reported amounts purchased against the number of purchases for each of the 55 respondents that reported any purchases in the previous year. If the relationship between purchase quantity and frequency were a linear one, then the respondents’ responses would group closely around a straight line of best-fit, with roughly

half the respondents falling just below and roughly half falling just above that line. It is clear that the data do not behave in this way.



**Figure 1.** Reported frequency of purchase (x axis) and amounts purchased (y axis) by all 55 respondents who reported any purchase in the previous year in the National Drug Strategy Household Survey 2013

Source: ANU NDSHS 2013 data file

### **1.3 Alternative estimates on extent of use of illicit unbranded tobacco in 2013—methodology matters!**

Numbers of respondents who indicated any number of purchases of unbranded are too small in the NDSHS to generate reliable estimates of the total quantity of illicit tobacco purchased in Australia. However detailed examination of the *pattern* of responses among smokers with different levels of purchasing behaviour who *did* answer this question shows that it is possible to generate widely varying estimates of average annual purchases of illicit tobacco per chop-chop smoker depending on exactly how the average is calculated.

#### **1.3.1 Purchases for sharing or on-selling**

A crucial issue on which KPMG LLP fails to report, is what to do about data from respondents who are quite evidently purchasing much greater quantities of illicit tobacco that they report using—possibly people who are purchasing in bulk and sharing (possibly even on-selling in some cases) with others in their family, household or friendship groups. While the questionnaire specifies that the survey is ‘talking about purchases for your use’, someone who was purchasing in bulk for sharing but nevertheless are using a small proportion of what they were buying for themselves, would still provide answers based on total purchase frequency and amounts to the questions ‘*in the past 12 months, how often did*



estimated annual quantity purchased by each purchaser identified in the National Drug Strategy Household Survey was 5.18 kg, or 4.16 kg once extreme cases were excluded (see footnotes to **Table 1**), as shown in the first section of data in **Table 1**. This is very similar to the 3.97 kg reported in the KPMG LLP report for the second half of 2013.[1] However the table also shows that purchasing habits of those buying loose tobacco are very different to those of smokers purchasing loose chop-chop cigarettes. As a consequence of this and of the non-linear nature of the data, estimates of total annual average use per chop-chop smoker can vary widely depending on how the figures obtained from users of each form of tobacco are treated.

In the second section of the **Table 1**, an estimated purchase total for each individual is indicated, both overall, and by tobacco type—calculated by multiplying each individual's number of purchases by their most recent purchase quantity. The results are then averaged across the whole sample. Accounting for individual purchasing behaviour in this way resulted in a reduction in the estimated average annual amount of chop-chop tobacco purchased per annum of approximately 1 kg for the whole sample and a reduction of almost 50% using the data excluding purchases for non-personal use.

Finally, a third possible estimation technique is demonstrated in the third section of **Table 1**, where purchase amounts are calculated separately for individuals who purchased only loose cigarettes, only loose tobacco, and both types of unbranded tobacco. When the purchase quantities were weighted to the proportion of each type of purchaser, the annual average purchase quantity was approximately 3.1 kg including 'extreme' cases. It can be seen here (comparing columns 1 and 2) that 'extreme' cases tended to be among individuals who purchased loose tobacco only, vastly inflating the purchase quantity for this sub-group. Because this sub-group comprised approximately half of all unbranded tobacco purchasers, excluding the extreme cases greatly reduced the estimated average total purchase quantity ... down to just 2.08 kgs.

The purpose of these workings is not to provide a definitive estimate of the amount of unbranded chop-chop tobacco used in Australia—the numbers of respondents from whom relevant data was collected was too small to allow this—but rather simply to demonstrate that estimates vary considerably depending on the estimation technique. In this data set greater precision in the estimation technique yields substantially lower estimates. KPMG LLP provides no information as to how outlying figures or missing data are treated. The table and text suggest that average amount purchased has been calculated in the crudest possible way. Whereas the method that appears to have been adopted by KPMG LLP applied to data from the NDSHS resulted in an estimated annual average quantity purchased of 5200 grams per current chop-chop user, a more precise estimation of the average annual amounts purchased for personal use was more like 2080 grams, almost two-thirds lower.

**Table 1.** Rough estimates of average amount of chop-chop tobacco purchased per annum in Australia using three different possible estimation techniques—All current smokers, Australia, April–November 2013

	Including quantities not purchased for personal use	Excluding cases where purchase quantity exceeds personal use#
<b>Rough estimates (sample average purchase frequency * sample average last purchase quantity)</b>		
All tobacco combined <sup>^</sup>	(n=53) 14.1 times * 367g = <b>5.18 kg</b>	(n=50) 13.0 times * 319g = <b>4.16 kg</b>
<i>But note....</i>		
Loose tobacco	(n=38) 7.9 times * 464.9g = 3.69kg	(n=34) 6.1 times * 417g = 2.52 kg
Loose cigarettes*	(n=26) 17.2 times * 68.9g = 1.18kg	(n=26) 17.2 times * 68.9g = 1.18kg
<b>Individual estimates (purchase frequency * last purchase quantity, per case, averaged across sample)</b>		
All tobacco combined	(n=53) <b>4.19 kg</b>	(n=50) <b>2.33 kg</b>
Loose tobacco	(n=39) 3.72 kg	(n=34) 1.77 kg
Loose cigarettes*	(n=26) 1.22 kg	(n=26) 1.22 kg
<b>Estimates using individual's responses, by purchaser type</b>		
Purchased loose tobacco only	(n=27, 50.9%) 3.65 kg	(n=24, 48.0%) 1.56 kg
Purchased loose cigarettes only*	(n=15, 28.3%) 1.58 kg	(n=15, 30.0%) 1.58 kg
Purchased both	(n=11, 20.8%) 3.89 kg	(n=11, 22.2%) 3.89 kg
Combined total, weighted to purchaser type proportion	(n=53) <b>3.11 kg</b>	(n=50) <b>2.08 kg</b>

# Excluded three cases altogether: one case who made 30 purchases of loose tobacco with the last purchase being 500 grams; one case who purchased loose tobacco 22 times and purchased 1kg on the last occasion; and one case who purchased loose tobacco 24 times and purchased 1kg on the last occasion.

The loose tobacco data for one case was also excluded (but their cigarette purchases retained): they purchased loose tobacco 20 times and purchased 1kg on the last occasion

Data from two cases that were deemed implausible purchase amounts (4 grams and 20kg) were excluded from **all** calculations.

Cases with missing data for either purchase frequency or purchase quantity were excluded, rather than imputing the average or other missing value score.

<sup>^</sup> Includes both loose tobacco and cigarette purchases for those that purchased both.

\* Assumes 0.75g of tobacco per purchased cigarette stick. The average number of cigarettes purchased per occasion was 92 sticks (min=1, max=300)

Source: ANU NDSHS data file[12]

## **2. Analysis of estimates—contraband (and counterfeit) cigarettes**

Estimates of use of contraband cigarettes (including cheap white cigarettes and also counterfeit cigarettes<sup>3</sup>) based on their representation in studies of discarded packs are likely to be inflated to the extent that packs disposed of outdoors are more likely to be those used by younger people (who are more likely to report any purchase of packs that are non-compliant with Australian packaging legislation), international students and other visitors to Australia, all of whom are more likely to be carrying packs not produced for the Australian market.[7]

KPMG LLPs' 2014 full-year report[1] provides more detail than contained in previous reports about the sampling frame for collection of discarded packs. It asserts that tourist areas are not focussed on. The report also notes that while minimum quotas of 30 packs from each of 281 neighbourhoods across Australia must be met, 'collectors accumulate as many empty packs as possible within each neighbourhood regardless of the quota requested in the sampling plan.' The report also states however, that 12,000 packs are analysed, some 3,570 more than the 8,430 that would be required to meet the quota. So, it is still not clear what percentage of packs come from areas which are frequented by high numbers of international students and/or other overseas visitors. The report does not state whether exactly the same method of selecting neighbourhoods applied to previous surveys; this raises the question whether the sample was more representative in 2014 HY2 and whether this contributed to the very large (60%) decline in estimated prevalence of non-compliant packs compared to HY 2013.

### ***2.1 Comments on KPMG LLP analysis of NDSHS survey data on purchase of non-compliant cigarettes***

The National Drug Strategy Household Survey for the first time in 2013 asked respondents whether they had purchased cigarettes that did not comply with Australia's plain packaging legislation.

All Australian states and territories now ban the display of cigarettes at point of sale, so that respondents who reported having seen cigarettes non-compliant with Australia's plain packaging laws must have seen them being used in the streets or by friends or acquaintances. There may also have been some observations of e-cigarettes which are not required to be plainly packaged. So the 18.5% of smokers in the National Drug Strategy Household Survey who reported having seen tobacco products without plain packaging is not an indication of the percentages that have seen such cigarettes for sale.

The survey went on to ask how many 'such packs' the person had purchased<sup>4</sup> and 9.6% reported having purchased at least one non-compliant pack. The majority of these—5.3% of

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<sup>3</sup> Considered a separate category in the KPMG LLP and other tobacco industry reports on illicit tobacco

<sup>4</sup> While the question was intended to refer to the previous three months, it did not specifically specify three months, and it is possible that some smokers interpreted the question as covering a longer time frame.

smokers—had purchased just one or two or a small number of non-compliant packs over that period, with 4.3% of smokers having purchased more than 15 such packs—see **Table 2**, reproduced from supplementary table 3.13 of that report.[8, 13]

**Table 2** Proportion of smokers<sup>(a)</sup> and total population, aged 14 or older, that have seen tobacco products without graphic health warnings and number of packets purchased<sup>(b)</sup>, 2013 (per cent)

Behaviour	Smokers <sup>(a)</sup>			All persons		
	Males	Females	Persons	Males	Females	Persons
Have seen tobacco products without plain packaging	18.7	18.3	18.5	13.3	11.7	12.5
Have not purchased tobacco products without plain packaging	91.3	89.1	90.4	98.0	98.2	98.1
Have purchased tobacco products without plain packaging	8.7	10.9	9.6	2.0	1.8	1.9
<b>Amount purchased</b>						
Purchased 1 – 2 packets	2.2	2.8	2.5	0.6	0.6	0.6
Purchased 3 – 5 packets	1.7	1.6	1.7	0.4	0.2	0.3
Purchased 6 – 9 packets	*0.5	*0.6	0.5	*0.1	*<0.1	0.1
Purchased 10 – 14 packets	*0.6	*0.7	0.7	*0.1	*0.1	0.1
Purchased 15 or more packets	3.6	5.1	4.3	0.8	0.8	0.8

(a) Includes people who reported smoking daily, weekly or less than weekly.

(b) This question asked about seeing {...} tobacco products without plain packaging in the previous 3 months. The survey period was 31 July to 1 December 2013, more than six months after 1 December 2012, when all tobacco products sold in Australia were required to comply with plain packaging legislation.

Source, Table 3.13 Australian Institute of Health and Welfare. National Drug Strategy Household Survey detailed report: 2013 - Supplementary tables. Canberra: AIHW, 2014. Available from: <http://www.aihw.gov.au/publication-detail/?id=60129549469&tab=3> .

KPMG LLP correctly notes that the NDSHS failed to specify a time period for such purchases. It also notes that some respondents may have been thinking about the last occasion of purchase rather than the total number of packs purchased over the previous three months. However it seems unlikely that any respondent would be answering in terms of just the last purchase occasion: the most common number of packs provided in a carton is ten and very few respondents chose this response option. The respondents reporting various numbers of such packs that had been purchased may equally have been thinking of purchases in periods extending *longer* than the previous three months (or even purchases that they made overseas).

KPMG LLP goes on to note that almost 50% of respondents had purchased ‘15 packs or more’, the highest allowed response category. It states that this might result in an understatement of amounts purchased. However this problem does not arise given that the average number of packs purchased was not computed.

## 2.2 Alternative estimate on extent of use on non-compliant cigarettes in 2013

Even assuming that reported numbers of packs purchased was accurate (and even allowing for all respondents reporting purchasing 15 or more non-compliant packs purchasing enough to cover their total reported consumption), unpublished data from the National Drug Strategy Household Survey data file reveal that reported numbers of non-compliant packs purchased would represent a small percentage of total packs purchased once the higher numbers of cigarettes smoked by older smokers (much less likely to have purchased such packs) are taken into account.

The proportion of packs purchased in Australia without required health warnings can be roughly estimated by examining data from the survey on each age group on both reported purchase of packs without health warnings and total reported consumption. Depending on the assumption made about how many packs on average are purchased by those who report '15 or more', it would seem most likely that about 2% of total packs used might be packs without health required health warnings—see calculations in **Table 3**. This estimate for 2013 on use of cigarettes without health warnings is roughly a quarter of estimates generated in discarded pack surveys—perhaps somewhere between 2 and 3 percent of all cigarettes purchased compared to the 9.7% estimated by KPMG LLP for 2013,[3] or the 6.7% estimated for 2014.[3]

**Table 3** Estimated percentages of cigarettes smoked per quarter from packs without required health warnings—by age group and total

Age range	Mean reported total number of cigarettes smoked per quarter	Percentage of smokers who report having purchased a pack without health warnings: 1–2 packs, 3–5 packs, 6–9 packs, 10–14 packs	Percentage of smokers who report having purchased 15 + packs without health warnings:	Estimated percentage of total cigarettes smoked if mean 15+ = 15	Estimated percentage of total cigarettes smoked if mean 15+ = 25	Estimated percentage of total cigarettes smoked if 90% of all cigarettes smoked are without health warnings
18–24	1090.6	4.1, 1.7, 0.5, 1.1	7.4	2.6%	4.0%	9.3%
25–29	994.2	2.9, 1.9, 0.3, 1.1	4.2	1.8%	2.7%	5.6%
30–39	1015.3	1.6, 2.3, 0.9, 0	2.7	1.2%	1.7%	3.6%
40–49	1370.2	1.4, 1.5, 0.3, 0.7	5.4	1.4%	2.2%	6.3%
50–59	1527.5	2.6, 1.7, 0.1, 0.5	3.9	1.0%	1.5%	4.5%
60–69	1524.9	3.0, 1.1, 0.6, 0.8	2.9	0.9%	1.2%	3.4%
70+	1479.4	3.1, 1.0, 0.8, 0.6	3.3	1.0%	1.4%	4.0%
<b>Total</b>	<b>1244.1</b>	<b>2.5, 1.7, 0.5, 0.7</b>	<b>4.3</b>	<b>1.4%</b> <b>Lower limit</b>	<b>2.1%</b> <b>Most likely</b>	<b>5.4%</b> <b>Upper limit</b>

Source: ANU NDSHS data file[12]

Notes: Calculation based on mid-point of range for each range up to 14, with three different estimates provided for the 15+ group; Questions asked "In the last 3 months have you seen any tobacco products which do not have the new plain packaging with the graphic health warnings?" and "How many of these packets have you purchased?" The second question did not specify a time frame so that some respondents may have interpreted this as extending back further than three months. This may have resulted in some over-estimation both because of the longer duration and because surveys conducted early in the collection period may have taken place only a few months after introduction of plain packaging.

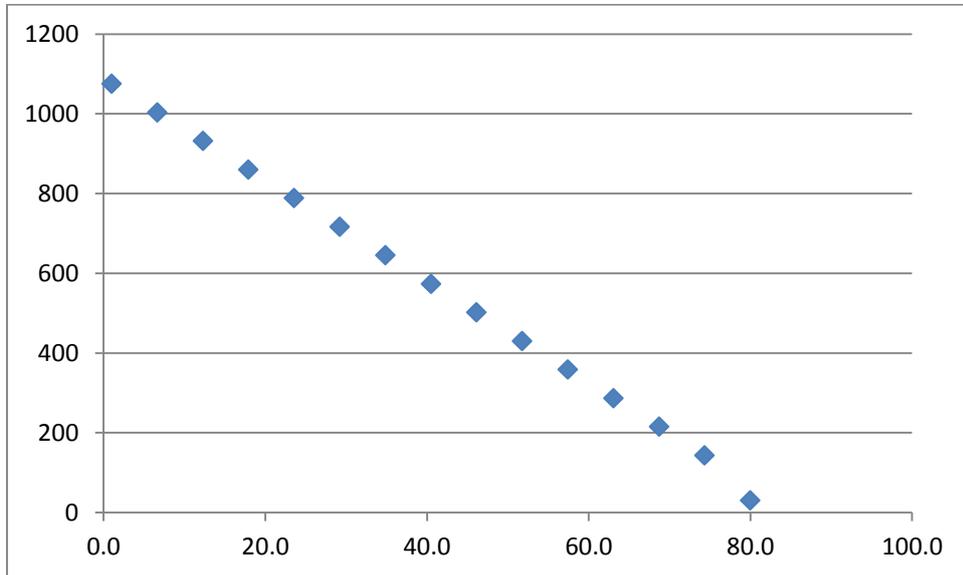
### 3. Changes attributable to plain packaging

The report provides no persuasive evidence that use of illicit tobacco has been affected by the introduction of plain packaging. Opponents of plain packaging predicted that use of illicit tobacco would increase because packs would be easier to counterfeit, however the prevalence of counterfeit packs found in the industry-funded surveys of discarded packs has fallen substantially. In fact on page 42 it is stated **“Through to the end of 2014, there has been no evidence of counterfeit plain packaging cigarettes.”** While the overall estimated prevalence of non-domestic cigarette packs detected in discarded pack surveys increased sharply between 2012 and 2013, it should be noted that the 2012 survey was conducted by a different survey company (refer column 2, page 24). (Nielsen (a generalist market research company) conducted the discarded pack survey in 2012, and MS Intelligence (which specialises in conducting discarded pack surveys for the tobacco industry in Europe and elsewhere) conducted each of the subsequent surveys. Further, the estimate of the prevalence of illicit cigarettes in discarded pack surveys did not continue to increase between 2013 and 2014. While not highlighted in the report, in fact the figure for 2014 was more than 17% *lower* than the figure for full year 2013 (Figure 1.1, p 6 and Table 5.2, page 30). The figure for Half Year 2 in 2014 (592 kgs, Figure A1, page 50) was almost **60% lower** than the figure for 2013 (half years 1 and 2 combined, Table 5.2, page 30). It was also almost 60% lower than the figure for the first half year of 2013 (KPMG, 2014[6] p43) The estimated amount of counterfeit cigarettes (in kgs) declined by more than 94% (from 143 tonnes in 2013 to 8 tonnes in 2014, none of which was plainly packaged).

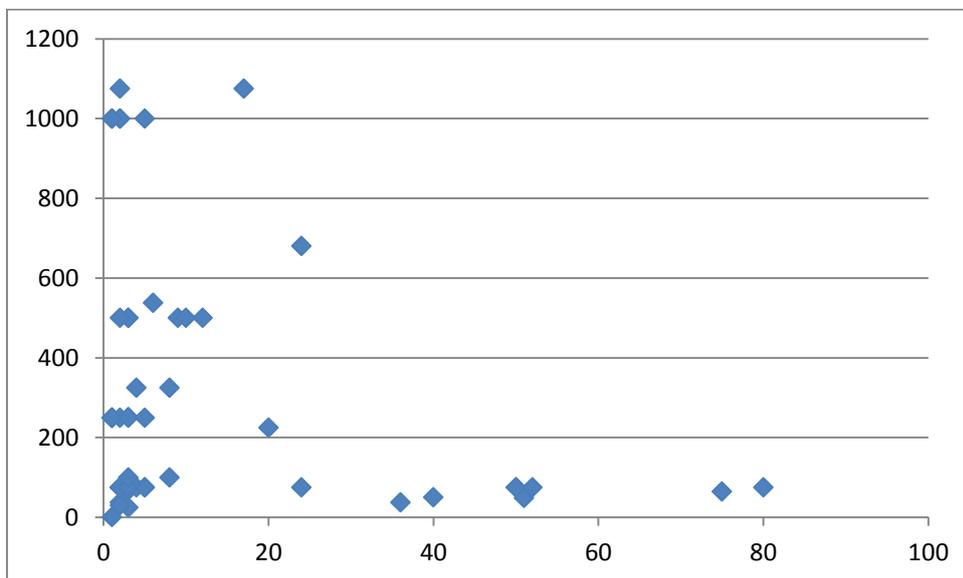
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**Attachment 1. Amount of chop-chop purchased in most recent purchase for each respondents' estimated number of purchases per year—regular smokers who report current use of unbranded chop-chop tobacco Australia, April–November 2013**



**Figure A1.** Hypothetical linear relationship between number of purchases per year (x axis) and amounts purchased (y axis), based on highest amount purchased and greatest frequency of purchase reported



**Figure A2.** Observed non-linear relationship between number of purchases per year (x axis) and amounts purchased (y axis)

