



A Critique of the ITIC/OE Asia-14 Illicit Tobacco Indicator 2013

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EXECUTIVE SUMMARY

The “Asia-14 Illicit Tobacco Indicator 2013” (Asia-14) report was published by the International Tax and Investment Center (ITIC) and Oxford Economics (OE) as a follow up to their previous attempt to estimate the scope and composition of illicit tobacco consumption in Asia presented in “Asia-11 Illicit Tobacco Indicator 2012” (Asia-11). Both reports were funded by Philip Morris International. The new report claims to take advantage of newly available data and improved methodology and covers all 10 ASEAN member nations plus Australia, Hong Kong, Pakistan, and Taiwan.

As was true for the prior edition, this report finds, echoing the position of the tobacco industry, that the illicit cigarette market represents a significant and increasing portion of the total cigarette market, and that this increase deprives the region’s governments of substantial tax revenues.

The key findings of the report include the following:

- In 2013, 10.9% of cigarettes consumed in Asia-14 were illicit.
- In 2013, the share of Illicit Consumption increased in 7 out of the 11 markets that were examined in the previous report.
- Domestic and Non-Domestic Illicit cigarettes both contributed to the rise in Illicit Consumption in Asia.
- Asia-14 government tax revenue losses from Illicit Cigarette Consumption totaled US\$ 3.9 billion in 2013.

Similarly to the 2012 report, the Asia-14 report fails to provide scientifically sound and unbiased information to policy makers and other tobacco market stakeholders. The reason for this is simple. The figures and statistics it reports are products of either incorrect or unverified/unverifiable estimation methods applied to often questionable data from multiple sources that do not blend. The results are not comparable across countries and are inconsistent with results of other studies.

The report’s problems fall into four general categories: methods and data issues, lack of sufficient detail to permit assessment and replication, selective presentation of results, and plain mistakes and errors. These are the major concerns:

- Different sources and methods are used across countries, leading to results that are not comparable to one another, yet presented for comparison, without acknowledgement of their distinctions.
- As was pointed out in the SEATCA critique of the Asia-11 report, no rationale is given for including or excluding countries from coverage in this report. The report excludes many of the region’s largest cigarette-consuming countries, such as China, Japan, and South Korea while including Pakistan, geographically an outlier. The lack of credible data is provided as the main reason for not including countries such as Japan. This is hard to believe since the authors were able to find credible data for countries like Myanmar, Lao PDR, and Cambodia.
- Many methodological approaches are either weak or lack sufficient description that would allow to judge their merits.
- The quality of the original data collection is questionable due to the lack of representativeness and possibly intended bias.
- Many secondary data come from sources with an obvious conflict of interest.

Beyond these weaknesses, the Asia-14 report in many cases fails to provide sufficient description of data used to generate the estimates.

This lack of transparency makes it difficult, if not impossible, for the report to be fully analyzed or critiqued; it certainly prevents replication of the report's estimates and other statistics. Even the authors' self-described attempt to provide more detail in the Annexes of the report falls short of the level of disclosure provided in academic studies and does not permit thorough evaluation.

- The Empty Packs Survey (EPS), which is a crucial component of the "IT Flows model" upon which most of the report is based, does not fully disclose its sampling frame, the timing of data collection, the criteria for distinguishing legal and illegal packs, and other crucial survey parameters, even though the validity of data generated by the survey are very sensitive to such issues.
- No information is provided about the packs that could not be classified as illegal or legal with certainty, and whether or not the collected packs are available for re-inspection.

The findings are selectively presented, highlighting examples of increasing illicit consumption while neglecting to point out the declines or no changes in some markets. In other words, the data are presented selectively to support a particular point-of-view. For example:

- The report fails to report that, even according to its own results, the majority of countries (six out of 11) compared over time experienced a decline in the volume of illicit trade.
- Nowhere in the report is it mentioned that for the majority of countries (four out of seven) where the share of illicit consumption in total consumption of cigarettes increased between 2012 and 2013, there was no tax increase in 2013. Such result might have undermined the notion that tax increases drive increases in illicit trade, a key message of the report.

Finally, the report is full of errors and mistakes, which is rather surprising given the "commercial" quality and glossy graphical presentation of the results. For example, the report does not make any distinction between smoking incidence and smoking prevalence, even though these are two very different concepts: prevalence is the proportion of a population that smokes, while incidence measures how many people per year begin to smoke. It also confuses "sales" and "consumption", two fundamental concepts on which the calculations are based.

In short, as was true for the prior Asia-11 Report, the reliance on potentially biased data, combined with the lack of transparency about methods employed, results in a study whose estimates are of questionable value. We would caution any stakeholders against relying on this report when assessing the trade in illicit cigarettes in their country or in the region.

Apparently the authors of the report are in agreement about this conclusion since they themselves expressly caution against reliance on their estimates by saying, "Should any party choose to rely on the report, they do so at their own risk. ITIC and OE will not accept any responsibility or liability in respect of the report."

This disclaimer speaks volumes about how much reliance should be placed on the findings of the Asia-14 report.

1 BACKGROUND

The “Asia-14 Illicit Tobacco Indicator 2013” (Asia-14) is an update of a previous report by the International Tax and Investment Center (ITIC) and Oxford Economics (OE), published in 2013 under the title “Asia-11 Illicit Tobacco Indicator 2012” (Asia-11). The new report claims to take advantage of newly available data sources and extends its coverage beyond the original 11 countries¹ to include countries not in the Asia-11 report, namely Cambodia, Laos, and Myanmar, so that it covers all 10 ASEAN member nations plus Australia, Hong Kong, Pakistan, and Taiwan.

The report’s institutional authors, ITIC and OE, come from the business community, and both Asia-11 and Asia-14 follow the format of a business report rather than that of a peer-reviewed, academic article. ITIC describes itself as, “an independent, non-profit research and education foundation that serves as a clearinghouse for information on best practices in taxation and investment policy” and purports to be “a neutral forum for discussion and resolution of problems in tax and investment policy.”² OE, based in the UK, describes itself as, “a key adviser to corporate, financial and government decision-makers and thought leaders.”³ ITIC’s corporate sponsors include Philip Morris International (PMI), British American Tobacco (BAT), Imperial Tobacco Limited (ITL), and Japan Tobacco International (JTI), among many others from a variety of sectors, including law, oil and gas, manufacturing, accounting, investment banking, consumer goods, beverages, and others. Four global tobacco executives—from Philip Morris International, Imperial Tobacco Limited, JT International, and British American Tobacco—serve on its Board of Directors.

The individual authors of the report are Daniel A. Witt, President of ITIC, Adrian Cooper, CEO of OE, and Scott Livermore, COO of Macroeconomics and Industry Services for OE. All three authors have a history of working for the tobacco industry.

ITIC and OE state that they “enjoy academic freedom and full editorial control” over the content of the report. They prepared it “in accordance with specific terms of reference agreed between Philip Morris Management S.A., an affiliate of Philip Morris International Inc. (PMI)” and ITIC (as indicated in the Executive Summary). Annex E, which purports to provide disclosure about the specifics of the terms of reference, claims, however, that the agreement also involved OE. It is not clear why OE is not mentioned as a party to the agreement in the Executive Summary. Financial support for the report was provided by PMI, but there is no information about how much PMI paid for it, the time of signing the agreement, the timeline for the delivery, nor any description of a review process. Throughout the report there are references to other participating tobacco companies, but no information is provided regarding the terms guiding such participation including financial contributions.

These links between the ITIC/OE and the tobacco industry are problematic, because research shows a systematic upward bias of the industry-funded estimates compared to academic studies.^{4,5}

¹ The Asia-11 Report included Australia, Brunei, Hong Kong, Indonesia, Malaysia, Pakistan, the Philippines, Singapore, Taiwan, Thailand, and Vietnam.

² <http://www.iticnet.org> [accessed 11/01/14].

³ <http://www.oxfordeconomics.com/about-us> [accessed 11/18/14].

⁴ Chen J, McGhee S, Townsend J, Lam TH, Hedley A (2015). Did the tobacco industry inflate estimates of illicit cigarette consumption in Asia? An empirical analysis. *Tobacco Control*, 0:1–7. doi:10.1136/tobaccocontrol-2014-051937

Similarly to the previous report, Asia-14 estimates are generated using OE's Illicit Trade (IT) Flows Model. It follows the approach of Klynveld Peat Marwick Goerdeler (KPMG), a consulting firm that prepares Project Star reports on the 27 Member States of the European Union (EU) for Philip Morris International as part of the company's commitments under its cooperation agreement with the European Commission. The IT Flows model uses data on legal cigarette sales, data from consumer surveys, and data from discarded packs surveys and estimates total cigarette consumption using the following equation:

$$\text{Total cigarette consumption} = \text{legal domestic consumption} + \text{legal non-domestic consumption} + \text{illicit domestic consumption} + \text{illicit non-domestic consumption}$$

As was true for the prior edition, this report finds, echoing the position of the tobacco industry, that the illicit market in cigarettes represents a significant and increasing portion of the total market and that this increase deprives the region's governments of substantial tax revenues.

The key findings of the report include the following:

- In 2013, 10.9% of cigarettes consumed in Asia-14 were illicit.
- In 2013, the share of Illicit Consumption increased in 7 out of the 11 markets that were part of the 'Asia-11 Illicit Tobacco Indicator 2012' report.
- Domestic and Non-Domestic Illicit cigarettes both contributed to the rise in Illicit Consumption in Asia.
- Asia-14 government tax revenue losses from Illicit Cigarette Consumption totaled US\$ 3.9 billion in 2013.

According to the ITIC websites "the Asia-14 report findings have been shared with government officials in the markets covered as well as Crime Stoppers International, TRANSCRIME and other organizations involved in monitoring and working to reduce the incidence of illicit trade in tobacco."

The report was first presented on 5 September 2014 by ITIC President Daniel Witt at the 8th annual Taiwan Anti-Illicit Trade Conference in Suao, Taiwan. On 9 September, to officially release the Asia-14 report, ITIC, Oxford Economics, and Hong Kong United Against Illicit Tobacco held a press conference in Hong Kong which was attended by over 25 journalists from all of the major television and radio stations and newspapers in Hong Kong. The report got the most coverage in the Philippines, Malaysia, and Hong Kong, and limited press coverage in Cambodia. ITIC President Daniel Witt has also presented the Asia-14 report at Interpol's 2014 International Law Enforcement IP Crime Conference held 23 - 25 September in Hanoi, Vietnam.

The following critique builds on the SEATCA critique, "Asia-11 Illicit Tobacco Indicator 2012: More Myth Than Fact,"⁶ which analyzed the Asia-11 report. Many of the points raised in that publication are further analyzed in this critical review.

⁵ Stoklosa M, Ross H (2013). Contrasting Academic and Tobacco Industry Estimates of Illicit Cigarette Trade: Evidence from Warsaw, Poland. *Tobacco Control*. *Tob Control* 2014; 23:e30-e34, doi:10.1136/tobaccocontrol-2013-051099

⁶ Southeast Asia Tobacco Control Alliance (2013). *Asia-11 Illicit Tobacco Indicator 2012: More Myth Than Fact*. Available from: <http://seatca.org/asia-11-illicit-tobacco-indicator-2012/>

2 GENERAL COMMENTS

The Asia-14 report suffers from an identity crisis. On one hand, it aspires to be taken seriously and to be regarded as on par with academic studies. On the other hand, it fails to adhere to the many conventions of writing, presentation of results, and review process that serve as the basis for the veracity, objectivity, and credibility that such academic studies enjoy. Academic studies are transparent about their methods and data, feature peer review, and disclose any conflicts of interest. Peer review by subject matter experts serves to ensure that the data sources are reliable and consistent, that the methods are correctly and consistently applied, and that the results are presented with sufficient details and interpreted in the light of existing evidence. Transparency of methods and data sources allows for verification and replication of results, eliminating errors and biases. Academic freedom ensures editorial independence. Disclosure of conflicts of interest allows the reader to give appropriate weight to the findings. The result of all these is high-quality publications. In contrast, reports commissioned and paid for by business interests and written by authors and organizations using inaccessible proprietary data can never have the same probative value. This report falls into the latter category, as this critique will illustrate.

Taken as a whole, the report suffers from a lack of consistency. Different sources and methods are used across countries, leading to results that are not comparable to one another, yet presented for comparison, without acknowledgement of their distinctions. This issue is further discussed in Section 3 below, but a cursory examination of Annex D: Overview of Data Sources, for example, shows that Primary Sources and Calculation methods do indeed differ across countries.

As was true for the previous Asia-11 report, the methods in the Asia-14 report are not clearly described, some data sources are questionable, the presentation of the findings is selective, and there are also numerous inconsistencies and mistakes.

The Foreword to the Asia-14 report makes reference to an improved methodology since the publication of Asia-11. Based on the level of details provided in Asia-11 and Asia-14 reports, we have not identified any improvement in the methodology except that 3 additional countries were added to the mix. This could lead to better estimates of duty-paid cigarettes leaving a country (called “outflows”) and reduce the number of packs whose origin is unknown (called “unspecified market variant”). Despite this possible refinement, the majority of illicit cigarettes originating outside a country (labeled “Non-Domestic Illicit”) consists of “unspecified market variant”, a fact that is mentioned only once when the summary results are presented.

In the attachment to the letter to the Southeast Asia Tobacco Control Alliance (SEATCA) written on September 17, 2014, ITIC and OE representatives say, in response to criticism about the lack of methodological details, “We have also decided to proactively provide more details in the annexes of our Asia-14 study report issued on September 11, 2014.” Even though the number of pages in Annexes increased from 42 pages in the Asia-11 report to 72 pages in the Asia-14 report, and their examination revealed methodological weaknesses that could not have been previously identified, the provided details still do not permit full assessment of the report’s scientific merit.

Another glaring weakness of the Asia-14 report is the reluctance of its authors to stand behind their findings. As noted above, ITIC purports to disseminate best practices in taxation, and OE claims to serve

as an adviser to businesses. They have included a disclaimer that on one hand states, “ITIC and OE assume all responsibility for the report’s analysis, findings, and conclusions” and “the purpose of the report is to serve as a public policy resource...” On the other hand, it continues, “nevertheless, should any party choose to rely on the report, they do so at their own risk. ITIC and OE will not accept any responsibility or liability in respect of the report.”

Apparently, public policymakers and business leaders who rely on ITIC and OE to provide guidance do so at their own peril. ITIC and OE assume all responsibility for their findings, and then deny all responsibility to anyone who relies on them. The disclaimer is something that would never be found in peer-reviewed academic articles, whose authors vouch for their findings with their names and reputations.

This could be a reason for such a high representation of *former* officials who contributed to the Foreword. Some of these contributors provided rather surprising remarks. For example, the director of Transcrime makes reference to how not releasing public data on illicit trade fuels the debate about the magnitude of the estimates. If there were public data on illicit trade, what would be the motivation of governments not to release the data and instead continue to commission studies to assess the scope of illicit trade? The director of Transcrime also believes that the Asia-14 report is the only source of estimates of the scope of illicit trade in Asia. This is not true, as is evident from the Asia-14 report itself, which cites alternative estimates of the scope of illicit trade from multiple countries.

One contributor to the Foreword, Mr. Jeff Hardy, claims that the report “sets a benchmark in fostering better knowledge of the illicit tobacco trade in Asia, especially given the significant volume of trade in counterfeit tobacco products” and that it helps us understand the impact of illicit tobacco trade on legitimate business investments. Since the percentage of counterfeit reported by ITIC/OE is only 0.3% and the topic of impact on legitimate business investments is not covered by the report at all, one wonders if Mr. Hardy actually read the report.

As was pointed out in the SEATCA critique of the Asia-11 report, no rationale is given for including or excluding countries from coverage in this report. The included countries are “a mixture of high-, middle-, and low-income countries, ranging in size from very small (e.g. Brunei and Singapore) to relatively large (Indonesia and the Philippines), and excluding many of the region’s largest cigarette-consuming countries, such as China, Japan, and South Korea...”⁷, all of which have relatively low percentages of illicit consumption. Pakistan, geographically an outlier, is also included in the group; is it because it is one of the three markets with reportedly the highest volume of illicit consumption (along with the Philippines and Vietnam)? The report claims that the reason for not including Japan is a lack of credible data (p. 20), but it is hard to believe that the authors were able to find credible data for countries like Myanmar, Lao PDR, and Cambodia, but not for Japan.

3 DETAILED COMMENTS

While the Asia-14 report may represent an improvement over the Asia-11 report, it still suffers from a variety of inadequacies, which broadly fall into four categories:

⁷ “Asia-11 Illicit Tobacco Indicator 2012: More Myth Than Fact,” South East Asia Tobacco Control Alliance (SEATCA). 2014, p. 5. Available from: <http://seatca.org/asia-11-illicit-tobacco-indicator-2012/>

- Methodological weakness and questionable data sources
- Lack of details
- Selective presentation of results
- Typographical errors, miscalculations, and similar errors

3.1 METHODOLOGICAL WEAKNESS AND QUESTIONABLE DATA SOURCES

The methods and data sources used to estimate the size of the illicit trade market vary substantially by country. For this reason, the estimates generated for different countries are not comparable. Any analysis related to that comparison is not valid without accounting for differences that could result from the application of different methods and from using inconsistent data sources. The different approaches/data sources across countries also lead to questionable regional estimates.

For example, the Empty Packs Survey (EPS), one of the report's primary data sources, was replaced in Taiwan by a Consumer Panel Survey. No reason was provided as to why a different data collection method was used in Taiwan.

The report's estimates of smoking prevalence come from multiple sources as well. The report claims to use smoking prevalence data from OECD, WHO, and national surveys, but this does not seem to be the case for all countries. For example, in Australia the source of prevalence data is an industry-funded KPMG 2013 report, while in Lao PDR it is the Tobacco Atlas (2012). The internationally recognized and authoritative source for smoking prevalence estimates is the World Health Organization (WHO)⁸ and it reports prevalence estimates for all countries included in the report. Data for Taiwan and Hong Kong are not reported by WHO, but Hong Kong has official estimates of smoking prevalence based on household surveys⁹ and Taiwan's prevalence has been reported in scientific journals¹⁰ and in the official Taiwan Tobacco Control Annual Reports. Therefore, there is no need to use internal PMI data for prevalence or to conduct consumer surveys. If the authors of the report insist on using data that they collect or data provided by PMI, they should let the reader know how these statistics differ from the official or previously published estimates. This information is all the more important since details on how the data were collected are missing.

The prevalence estimate plays a key role in estimating the share of Non-Domestic Legal cigarettes in Non-Domestic cigarette consumption in foreign markets, which ultimately impacts the size of the illegal market in those foreign markets: the lower the prevalence, the lower the Non-Domestic Legal consumption in foreign markets, and the higher the Non-Domestic Illegal consumption in those foreign markets. To the extent that the prevalence estimates used by the report are lower than official estimates, the illicit cigarette consumption in all other countries will be overestimated thanks to the interconnectivity of the IT Flows model.

⁸ WHO report on the global tobacco epidemic, 2013, WHO 2013.

⁹ Thematic Household Survey Report - Report No. 53. Census and Statistics Department, Hong Kong, November 8, 2013. Available from:

http://www.censtatd.gov.hk/fd.jsp?file=B11302532013XXXXB0100.pdf&product_id=B1130201&lang=1

¹⁰ Hai-Yen Sung, Li-Chuan Chang, Yu-Wen Wen and Yi-Wen Tsai. The costs of smoking and secondhand smoke exposure in Taiwan: a prevalence-based annual cost approach. *BMJ Open* 2014;4:e005199 doi:10.1136/bmjopen-2014-005199

Another problem with comparing estimates across countries and over time is related to the fact that the amount of tax losses is expressed in US\$ using variable exchange rates (p.16). This means that both types of comparison depend heavily on changes in exchange rates, both relative changes across countries and changes over time. The comparison is further hindered by the fact that in some countries the estimates of tax losses are based on a calendar year, but in other countries these estimates are based on a fiscal year (p 176 – 179). This allowed the authors to selectively choose tax rates that generated the maximum possible tax loss (see the case of Hong Kong and Singapore below).

In calculating tax losses, the report falsely assumes that total consumption would not change if there were no illicit trade. If illicit cigarettes are cheaper compared to legal cigarettes, eliminating illicit trade would increase the average price of cigarettes and reduce their consumption. This means that the governments would not be able to recover the amount of tax losses estimated by Asia-14 if there is no illicit cigarette consumption, unless they increase their tobacco tax rates also.

When estimating tax losses for 2013, the report applies a larger variety of different tax rates across countries (p. 176 - 177): a 2013 weighted average excise rate, 2012/13 weighted average excise rate, 2013/14 weighted average excise rate, excise tax rate on the most sold brand, etc. Therefore, the estimates across countries are not comparable, and the choice of rates seems to be driven by showing the maximum possible tax losses. For example, the report chose 2013/2014 instead of 2012/13 fiscal year for Hong Kong and Singapore, because these two countries increased tax rates in February 2014. This choice increased the revenue loss in Hong Kong and Singapore by about HK\$ 31 million (US\$ 4 million) and SGD 4.4 million (US\$ 3.5 million), respectively, compared to relatively smaller revenue losses if fiscal year 2012/13 were chosen.

Using the excise tax rate on the most sold brand will most likely overestimate the tax loss since those who consume illicit products are more price-sensitive and, if the illicit products were not available, would either quit, reduce consumption or use cheaper cigarette brands with taxes that would be lower compared to the most sold brand.

Different tax rate calculations are also used for the same country to generate 2012 and 2013 revenue loss estimates. For example, the 2012 calculation for Indonesia used excise rates per tier, but the 2013 estimates were generated using weighted average excise rate. This makes the estimates of tax losses non-comparable over time.

The report's primary source of data, the EPS, feeds into the Illicit Trade (IT) Flows model developed for this report to estimate illicit consumption, as stated in the Glossary of Terms. Despite the lack of details about how the EPS was conducted, it is possible to identify serious problems with the representativeness of the data. The EPS does not cover rural areas, so the samples are not representative of entire countries. This is of particular concern in countries where a large share of the population lives in rural areas. The report even states that the EPS covers only 14% of the population in Cambodia, 15.5% of the population in Indonesia, 17% of the population in the Philippines, 16.7% of the population in Thailand, and 15.5% of the population in Vietnam, while the information on representativeness is missing for some countries (Lao PDR, Malaysia, Myanmar). In Lao PDR and Myanmar, for example, 66% and 67% of the population, respectively, lives in rural areas according to World Bank 2011 data. This means that estimates in at least half of the countries are based on unrepresentative samples of the population. If the consumption of illicit cigarettes is concentrated in

urban areas, as in Vietnam¹¹ for example, the EPS will systematically overestimate the size of the illicit market.

The IT Flows model itself has serious shortcomings. The outflow of duty-paid cigarettes to other countries has been systematically underestimated, since the majority of packs from EPS are of “unspecified market variant” (i.e. packs that do not bear specific market labeling and their intended retail market is unknown) and the model is capable of capturing only outflows to the other 13 countries covered by the report. The estimates of the inflow of legal cigarettes from other countries (“Non-Domestic Legal” cigarettes) is also biased downward, since it is based only on the top three “inbound markets” (i.e. the source countries of legally imported cigarettes). Both of these estimates lower the final estimate of total legal consumption in a country and increase the percentage of the total market that consists of illicit cigarettes.

In calculating “Non-Domestic Legal”, the model assumes that the demographic composition of international tourists is similar to that of the origin country as a whole. This is not a very realistic assumption, as one would expect that families with small children and/or very old people travel less. The applied OE Tourism Model, “the only global econometric model of world travel with over 50,000 indicators,” should be able to generate more refined estimates. In addition, the number of inbound tourists is adjusted to account only for tourists aged 15 years and older. There is no reason why such adjustment shouldn’t have been applied to outbound tourists as well.

To estimate the number of illicit cigarettes originating outside a country (“Non-Domestic Illicit Consumption”), the model claims on page 150 that Non-Domestic packs found via EPS must subtract legal Duty-Free and Duty-Paid cigarettes from other markets. Yet on page 156 the model only subtracts legal Duty-Free cigarettes, which means that it fails to subtract legal Duty-Paid Non-Domestic cigarettes and overestimates the size of the illegal market. To add to the confusion, the Glossary of Terms defines Contraband as illicit packs that bear specific market labeling or Duty-Free labeling. If the report followed this definition, the size of the illicit market was overestimated by including (not subtracting) Duty-Free cigarettes. According to the Glossary of Terms, counterfeit cigarettes are all considered Non-Domestic Illicit. This is an erroneous assumption since counterfeit cigarettes can be produced locally. This assumption leads to overestimation of the size of “Non-Domestic Illicit Consumption” at the expense of “Domestic Illicit Consumption”.

The report claims that total Counterfeit volumes may be underestimated. This is the result of the report’s design, which allowed only the PMI brands to be analyzed for authenticity across all markets while selectively choosing some additional markets (Australia, Hong Kong, Malaysia, Singapore, and Taiwan) to be analyzed by other participating companies. However, the report fails to clarify that this underestimation would not change the total estimated volume of illicit trade, because the model places any unidentified counterfeit cigarettes in the “unspecified market variant” category and still counts them as illicit consumption. Therefore, the fact that the volume of counterfeit cigarettes is underestimated does not mean that the total illicit consumption is underestimated.

In Annex C, the report attempts to boost confidence in its estimates by testing them against alternative methods or by reporting estimates of illicit trade generated by other entities. For example, the estimates of the domestic cigarette market based on the IT Flows Model are claimed to be cross-verified

¹¹ Nguyen TM, Dao ST, et al (2014). Portrait of Illicit Cigarette Trade in Vietnam (unpublished report).

using a “bottom-up” approach. This approach uses prevalence, average consumption, and adult population to estimate the total consumption of cigarettes in a country. However, such an approach has many weaknesses such as consumer underreporting, recall bias, rounding bias, etc., which contaminate the estimates. The report points to only one of these weaknesses, but makes no effort to correct for this method’s shortcomings. This is a serious issue since, in the case of Brunei, the report relies only on this “bottom-up” approach to estimate total consumption, i.e. the size of the domestic cigarette market.

The report’s main approach is supplemented by other methods such as Passer-by Surveys, Pack Swaps, and Extrapolation from Seizures Data. Almost all of the listed supplemental studies are methodologically extremely weak, with the exception of the Econometric Estimates method, and that method is not described correctly. The Asia-14 authors believe that this method first uses data from a place where illegal consumption does not exist and then uses the model’s coefficients to predict the consumption in places with illegal consumption. In econometric studies, the demand for cigarettes is usually measured by official tax-paid sales, which is estimated as a function of a set of variables affecting demand, including variables measuring incentives for engaging in illicit cigarette trade. None of these studies use data from places where illegal consumption does not exist. This lack of understanding of the econometric analysis that has been applied to generate Asia-14 estimates further reduces the credibility of the estimates.

Some alternative estimates presented in the report came from the commercial organization Euromonitor. Euromonitor provides this disclaimer in their reports: “Euromonitor International is a tobacco market research and analyst firm largely for the tobacco industry. While Euromonitor provides essential information on trade statistics and tobacco industry operations worldwide, their analyses regarding legislation, litigation, illicit trade volumes, and smoking prevalence should not be considered credible as the sole source for this type of information.” It is not clear why a reader of the Asia-14 report (or Asia-11 report) should rely on data provided with such a disclaimer.

The report often relies on questionable data sources. Substantial amounts of data come from the tobacco industry and affiliated organizations or were prepared for the tobacco industry. Even though the report claims to use official data, i.e. from government or international organizations, a closer examination reveals that these sources are grossly underutilized.

For example, it is not clear why the report uses OECD prevalence data if WHO reports prevalence for all WHO member states covered by this report and government-recognized or published data for Hong Kong and Taiwan are available^{12,13}. Not using official prevalence figures results in some surprising and erroneous statistics: according to the report, China and the USA have almost the same smoking prevalence, and smoking prevalence in Thailand is higher than in China. According to the official WHO figures¹⁴ and data on US smoking prevalence provided by the Centers for Disease Control (CDC)¹⁵, the

¹² Thematic Household Survey Report - Report No. 53. Census and Statistics Department, Hong Kong, November 8, 2013. Available from:

http://www.censtatd.gov.hk/fd.jsp?file=B11302532013XXXXB0100.pdf&product_id=B1130201&lang=1

¹³ Hai-Yen Sung, Li-Chuan Chang, Yu-Wen Wen and Yi-Wen Tsai. The costs of smoking and secondhand smoke exposure in Taiwan: a prevalence-based annual cost approach. *BMJ Open* 2014;4:e005199 doi:10.1136/bmjopen-2014-005199

¹⁴ WHO report on the global tobacco epidemic, 2013. WHO 2013

¹⁵ Centers for Disease Control and Prevention. Current Cigarette Smoking Among Adults—United States, 2005-2012... *Morbidity and Mortality Weekly Report* 2014; 63(02):29–34 [accessed 2014 Feb 14].

adult smoking prevalence in the USA and in Thailand are 27% and 21% lower, respectively, compared to China.

Annex A states in one of its figures (p. 147) that the primary source of Legal Domestic Sales are In-Market Sales (IMS) data; however, the text below the figure negates that by saying that publicly available estimates of Legal Domestic Sales are used as a default, and IMS is only used in some countries where a widely accepted Legal Domestic Sales figure does not exist. On the next page (p. 148, Annex A), the report reveals that nine out of 14 countries used IMS data (primarily based on PMI estimates), two countries used AC Nielsen estimates, and only 2 countries (Australia and Hong Kong) used official sales data.

On page 150, Annex A claims that the primary source of data for estimating Non-Domestic Legal consumption is EPS. However, EPS data are not mentioned anywhere when the approach is described on the same page, which leaves a reader to wonder whether EPS data was used or not, and if so, how.

Finally, it is not clear why the report was able to cover both manufactured cigarettes and chop-chop (unbranded loose tobacco) in Australia, but it could not cover loose tobacco products in other countries, even where they represent a substantial share of the tobacco market (e.g. roll-your-own cigarettes in Thailand).

3.2 LACK OF DETAILS

The methodology is not adequately described. As was true for the Asia-11 report, the Asia-14 results lean heavily on the IT Flows model, which relies primarily on data from the Empty Pack Surveys (EPS). However, critical information about the model and the surveys is not provided.

The most uncertainty stems from the Empty Pack Surveys (EPS). First of all, it is not clear who conducted these surveys. According to information provided on page 19, independent research companies conducted these surveys, but information provided on page 21 negates that information by attributing the data collection to PMI and other unspecified tobacco manufacturers. Then, Annex A informs that tobacco companies commission these surveys from various research companies. Therefore, it is not clear what role tobacco companies play in the EPS.

Second, the sampling method of the Empty Pack Surveys can only be guessed from information scattered throughout the report. The sampled locations are only vaguely described, while no information is provided as to how the specific locations for data collection were selected within the given geographical areas and whether the same locations were used more than once if the data was collected in multiple waves. Since the timing of the data collection can play an important role, information about the time of day and the part of the week when packs were collected, as well as any synchronization with garbage collection, should have been provided.

Without this information it is not possible to judge whether the sampled locations and timings were representative of all probable packs consumed in the given geographical location, or whether they systematically oversampled tourists and commuters.

Third, Annex A reports country-specific sizes of the EPS samples, but it does not clarify if those sample sizes are the results of multiple surveys or just one wave of data collection. Nowhere in the report is it

explained how the sample sizes were decided and why some countries collected data in multiple waves while others didn't.

Fourth, a reader knows very little about the criteria used in determining a pack's origin and placing it in one of the three categories (unspecified variant, counterfeit, or contraband), and he/she is told nothing about the training of people identifying the packs and how they were instructed to handle cases of uncertainty. It is doubtful that all packs could have been clearly assigned to one of the three categories, yet no information is provided as to what percentage of the packs were not identifiable, and whether or not the collected packs are available for re-inspection.

Since the methodology of EPS in some countries (e.g. Singapore) provided more details than in others, the sufficient information about the EPS method must exist, but it has not been disclosed uniformly across countries.

Often, the data from EPS are accompanied and/or supplemented by "surveys" and "expert opinion". Regarding the surveys, no details are provided except that the data were collected in 2013, and even that is not certain given that the terms of reference state that the data will be both from 2013 and some part of 2014. The data quality and the results generated from those data depend on the questions asked in the surveys, but the study doesn't provide a single questionnaire used to collect the data. There is no information about how the retail survey/audit was used to estimate illicit domestic consumption or illicit domestic production. Expert opinion as a method can be grossly biased, but no details are available as to who the experts were, how they were selected, how the information they provided was processed, and whether and how much they were paid.

In addition to the lack of clarity about the EPS, many other details are also lacking. Annex C briefly describes (pp. 181-183) several alternative methods and data sources, including their disadvantages, used to estimate the scope of illicit trade; however, there is no information as to how these shortcomings might have affected the validity of the estimates. The results for these "other studies" are not provided with the exception of the Empty Pack Surveys (it is unclear why it was included with "other studies" if it is the primary method) and the "bottom-up" approach (results provided for selected countries only) in the Annex C section called "Other estimates".

Apart from the EPS, other critical data needed for the IT Flows model is country-specific smoking prevalence. Unfortunately, the definition of this variable is not sufficiently clear. The Glossary of Terms defines smoking prevalence as "the percentage of smokers in the total adult population", but no information is provided as to how the adult population is defined. Is it similar in each of the 14 countries? How is "smoking" defined? Is it smoking only commercially manufactured cigarettes? Incorrect estimates of smoking prevalence can bias the study's estimates.

The IT Flows model uses an estimate of legal Non-Domestic consumption that is generated with the help of the OE Tourism Model. This model is only vaguely described and readers have to speculate as to how the model's "over 50,000 indicators" were used to estimate the number of tourists, and why it is relevant that the model forecasts 10 years into the future if the estimates in the report are for 2013.

Even though the report provides information on exchange rate assumptions, it fails to clarify whether these are exchange rate averages for the whole year or are based on a specific date.

In addition, the source of the price data for the regional overview (p. 26) is not disclosed, and one can only speculate as to how OE determined the most-sold brand (p. 27).

Finally, despite being based on numerous assumptions, the estimates are not accompanied by a sensitivity analysis that would test a range of possible assumptions, and none of the estimates are provided with confidence intervals or a margin of error, as would be found in an academic article.

3.3 SELECTIVE PRESENTATION OF RESULTS

The report selectively highlights some results (emphasizing illicit trade) but often fails to report important contrary findings found in the same data.

For example, Annex C attempts to compare in graph form estimates of illicit cigarette market shares obtained using alternative methods or provided by other entities. This graphic presentation is very selective, because whenever one of the methods (the “bottom-up” approach) generates an estimate of no illicit trade (e.g. in Australia, Cambodia, Philippines, Singapore, Thailand, and Vietnam), it is not included in the figures. The graphs only present estimates greater than zero.

A similar selective approach to the results’ presentation is also seen in the part of the report devoted to evaluating the trend in illicit cigarette consumption by comparing the 2012 and 2013 estimates. The report fails to point out that even according to its own estimates, 6 out of 11 countries that are being compared over time saw a decline in the volume of illicit cigarette consumption (p. 29). A headline saying that “the majority of countries experienced a decline in the volume of illicit trade” would probably not align well with the overall impression the report hopes to make.

Significantly, noting how the industry often claims that tax increases drive illicit trade, nowhere in the report is it mentioned that for the majority of countries (four out of seven) where the share of illicit consumption in total consumption of cigarettes allegedly increased between 2012 and 2013, there was no tax increase in 2013 (p. 10).

Countries that according to the report experienced the most significant increase in tax loss in absolute terms due to illicit trade (the Philippines, Australia, Indonesia, Taiwan, and Vietnam) also experienced an increase in tobacco tax revenues, which was larger (in absolute terms) than the increase in the estimated tax loss (p. 30). Again, the report failed to report this important finding.

The estimates of Non-Domestic Illicit in the Executive Summary did not show what percentage of these illegal cigarettes are contraband (genuine brands from other countries found to be illegally consumed in the domestic market), counterfeits, and unspecified market variant (the country of origin cannot be identified). Perhaps the report did not want to highlight the fact that the largest share of Non-Domestic Illicit consists of unspecified market variant, because it would reduce the reliability of the IT Flows model.

Even though the report points to a large, 146% increase in the volume of counterfeit cigarettes, the share of counterfeit cigarettes in the estimated illicit consumption only grew from 1.1% to 2.8%. The report perhaps did not want to draw attention to the fact that the counterfeit cigarettes still represent a negligible share of illicit consumption, while the genuine products manufactured primarily by the transnational tobacco companies occupy the overwhelming share of the illicit cigarette market.

3.4 DEFINITIONS, TYPOGRAPHICAL ERRORS, MISCALCULATIONS, AND SIMILAR ERRORS

The following paragraphs list some of the numerous errors found in the report.

The report does not make any distinction between smoking incidence and smoking prevalence, even though these are two very different concepts: prevalence is the proportion of a population that smokes, while incidence measures how many people per year begin to smoke.

The definition of Contraband in the Glossary of Terms is also incorrect. There is no reason why contraband needs to be re-sold in “a higher-priced market” to qualify as an illicit product. Such a definition would implicitly exclude, for example, pre-taxed Malaysian brands sold illegally in Thailand, because Thailand is a lower-priced market compared to Malaysia. Yet the seller would be making a profit if the pre-tax cigarettes are cheaper than the price such cigarettes would command in Thailand.

On page 11 the report states that 6.6% of Illicit Consumption is Non-Domestic, but it should state that 6.6% of Total Consumption is Non-Domestic Illicit. A similar mistake (6.2% of Illicit Consumption is Non-Domestic) is repeated on page 12.

The text on page 13 says that Non-Domestic Legal stayed unchanged between 2012 and 2013, but the table below it very clearly states that this type of consumption declined by 0.7%.

The heading at the top of the third blue box on page 146 is incorrect – it reads, “Add Non-Domestic Legal (NDL) to Legal Domestic Sales to derive total legal consumption” where it should say “Add Non-Domestic Legal (NDL) to Legal Domestic Consumption to derive total legal consumption”.

Finally, none of the tables and figures are numbered, which makes it extremely difficult to navigate through the report. For example, on page 32 there are two figures with the same title. Also, figures in the tables are presented in a very confusing way. Often, it is not clear what the base for calculating the percentage is, since the only heading on a table column is “%”. What is even more confusing is the fact that such tables have “Total Consumption” in the last row as 100%, but the lines do not add up to 100%. Some rows require subtraction, others addition of adjacent figures to sum properly. The slightly different colors used in the table are supposed to help, but they are hardly distinguishable. Some tables show percentage change, but since they have multiple columns, it is not clear which numbers are compared (e.g. page 13).

And finally, not all abbreviations are explained (e.g. IDS and FOB).

4 COUNTRY ANALYSES

This section demonstrates specific weaknesses of the report from a country-level perspective. We have selected two countries, Australia and Hong Kong, for a detailed country-level analysis while highlighting only a few country-level specific issues for other countries.

4.1 AUSTRALIA

The report's estimates for Australia in 2013 are very similar in magnitude to those provided by international consulting group KPMG LLP in its 2013 report.¹⁶ The KPMG LLP 2013 report is one of more than ten reports commissioned by the tobacco industry over the past seven years estimating very high levels of use of illicit tobacco in Australia.

The similarity of the Asia-14 and the KPMG LLP 2013 results are not a surprise, since both studies rely on the same EPS for their estimates of the illicit cigarettes consumption, and the estimate of illicit unbranded tobacco (chop-chop) consumption presented in the Asia-14 report was taken directly from the KPMG LLP 2013 report. Results of the EPS are adjusted to take into account an estimate of the number of packs discarded by international visitors/citizens returning from overseas trips, while the estimates of illicit unbranded tobacco consumption is based on an internet survey of smokers.^{17, 18}

The validity of the estimates of the size of the illicit market in Australia in both the Asia-11 and Asia-14 reports and in all three KPMG LLP reports thus depends crucially on:

1. the representativeness of those two surveys (the internet survey of smokers and the EPS), and
2. the adequacy of adjustments for legitimate non-domestic purchases.

4.1.1 VALIDITY OF INDUSTRY SURVEYS AND ADJUSTMENTS

INTERNET SURVEYS OF SMOKERS

The Asia-14 report states that the survey of unbranded (illicit) tobacco (also known as “chop-chop”) was conducted by KPMG (p. 157), but page 184 contradicts this statement saying that the survey was done by Roy Morgan Research.

The Asia-14 report estimates that unbranded tobacco constitutes over 40% of the total amount of illicit tobacco consumed in Australia—approximately 5.3% of total consumption (p. 41). This estimate is based on prevalence and the amounts used as reported during an internet survey. This survey relies on smokers opting into the survey rather than randomly selecting the participants. This method will result in biased estimates if the participation in the survey is skewed towards those more interested in the topic and thus more likely to engage in unbranded tobacco consumption.¹⁹ In addition, it is difficult to ascertain from telephone surveys whether particular cigarettes purchased by smokers are contraband or not.

¹⁶ KPMG LLP. *Illicit tobacco in Australia: 2013 full-year report*. Sydney 2014. Available from: http://www.bata.com.au/group/sites/BAT_7WYKG8.nsf/vwPagesWebLive/DO9FC38M?opendocument&SKN=1.

¹⁷ KPMG LLP. *Illicit tobacco in Australia: 2013 full-year report*. Sydney 2014. Available from: http://www.bata.com.au/group/sites/BAT_7WYKG8.nsf/vwPagesWebLive/DO9FC38M?opendocument&SKN=1.

¹⁸ KPMG LLP. *Illicit tobacco in Australia: 2013 half year report*. Sydney 2013. Available from: http://www.bata.com.au/group/sites/BAT_7WYKG8.nsf/vwPagesWebLive/DO9879X3?opendocument&SKN=1

¹⁹ Quit Victoria. *Critique of “Illicit tobacco in Australia: full year report, 2014 by KPMG LLP.”* Melbourne, Australia: Cancer Council Victoria, 2014. Available from: <http://www.cancervic.org.au/plainfacts/browse.asp?ContainerID=illicittobacco>.

Independent government-funded surveys estimate many *fewer* smokers who report using unbranded tobacco as well as the *amounts* they report using²⁰ and find that this type of tobacco represents between 1–2% of total tobacco consumption per year.²¹ It is unclear why the Asia-14 report classifies chop-chop as non-domestic illicit tobacco (p.13) if it is clearly a domestic product.

DISCARDED PACK SURVEYS (EPS)

The estimates of illicit cigarette consumption are based on surveys in towns and major cities, while no packs are collected in rural areas, where approximately 25% of the Australian population resides. It is quite plausible that rates of use of illicit tobacco would be substantially lower in rural areas many hundreds of miles away from likely illicit distribution channels.

For the cities and towns, no information is provided on the exact locations of collections or on the exact methodology of collection. Without this information, it is not possible to judge even the representativeness of the urban areas.

ADJUSTMENTS FOR LEGITIMATE NON-DOMESTIC PURCHASES

Estimates of the amount of non-domestic legal purchases included in the Asia-14 report are based solely on the duty-free allowances for overseas visitors (page 152). These are calculated based on smoking rates in the countries of origin of each visitor as well as applicable duty-free allowances. This calculation ignores the fact that non-smokers may bring in cigarettes as gifts for family members. It also ignores the fact that people visiting or returning to Australia can bring in cigarettes beyond the duty-free allowance and simply declare these and pay customs duties.

In its annual report released in October 2014,²² the Australian Customs and Border Protection Service included data on interceptions of cigarettes through the mail service in Australia. It reported that 44% of tobacco arriving via international mail was legal duty-paid. Yet the Asia-14 report and the KPMG LLP 2013 report fail to account for these legal non-domestic cigarettes.

For these reasons and given the likely unrepresentativeness of the discarded pack surveys, Asia-14 estimates of the prevalence of contraband tobacco are likely to be inflated.

4.1.2 ALTERNATIVE DATA ON ILLICIT TOBACCO IN AUSTRALIA

The Asia-14 report includes and comments on the strengths and weaknesses of other available data sources on illicit tobacco (Annex A and Annex C), and it also includes a number of alternative estimates of the size of the market (page 184). However, not only does the report fail to point out that three out of the five estimates (including the “bottom-up” approach) show that the share of illicit trade in the market is less than 4% (in contrast to the OE and KPMG estimates that are over 13%), it also omits

²⁰ Scollo M, Zacher M, Durkin S, and Wakefield M. Early evidence about the predicted unintended consequences of standardised packaging of tobacco products in Australia: a cross-sectional study of the place of purchase, regular brands and use of illicit tobacco. *BMJ Open*, 2014; 4(8). Available from:

<http://bmjopen.bmj.com/content/4/8/e005873.abstract>

²¹ Quit Victoria. Illicit trade of tobacco in Australia: a report prepared by Deloitte for British American Tobacco, Philip Morris Ltd and Imperial Tobacco Australia Limited: a critique prepared April 2012. Melbourne, Australia: Cancer Council Victoria, 2012. Available from:

<http://www.cancervic.org.au/plainfacts/browse.asp?ContainerID=illicittobacco>.

²² AC&BP annual reports, 2007-08 to 2013-14 Australian Customs and Border Protection Service. Annual Report 2013-14. Canberra: ACBPS, 2014. Available from: <http://www.customs.gov.au/site/page4283.asp>

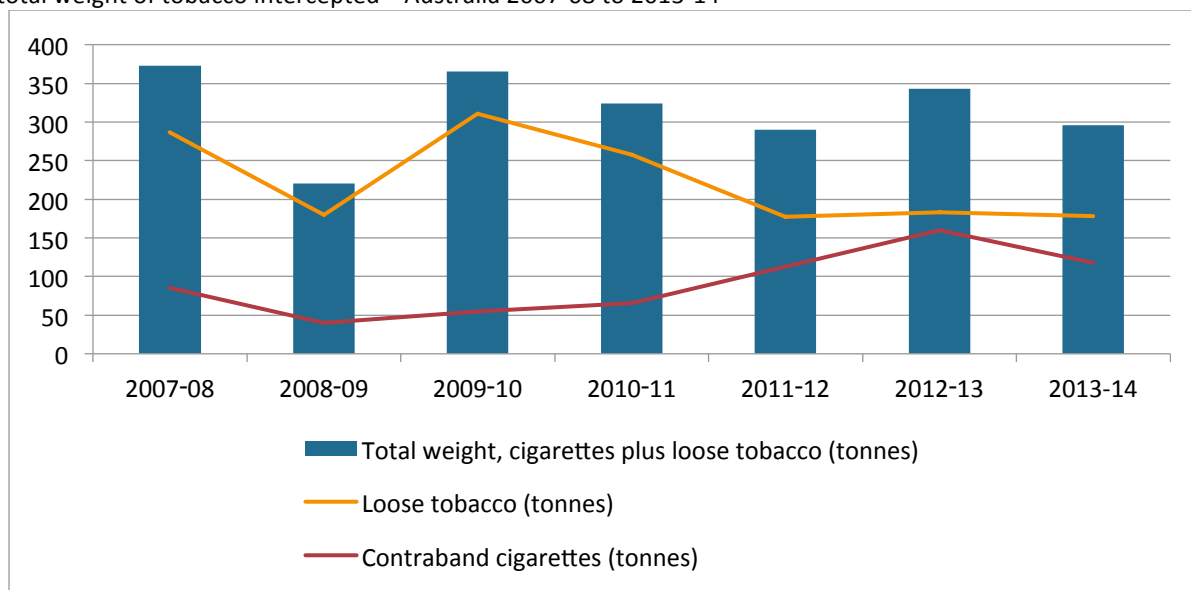
additional sources of data on illicit tobacco (summarized below) that were available prior to the Asia-14 report publication in September 2014. It is also unclear why the smoking prevalence was taken from KPMG report if official prevalence data exist.

INTERCEPTIONS OF SEA CARGO AND INTERNATIONAL MAIL

The Asia-14 report states that the Australian Customs and Border Protection Service seized 3.4% more illicit tobacco and 41.8% more illicit cigarettes in 2012–13 than in 2011–12 (p. 40). While accurate this ignores the fact that 2011–12 was a low year for interceptions—see **Figure 1** and **Table 1**. In addition, seizures can vary significantly from year to year due to factors unrelated to the extent of illicit trade. For example, the seizures are particularly affected by enforcement efforts, which increased in Australia in 2012–13 given the industry claims that plain packaging would cause illicit trade to rise.

Data on sea cargo interceptions by the Australian Customs and Border Protection Service over the past five years indicate an increase in seizures of contraband cigarettes commencing in 2010–11 when excise and customs duty in Australia increased by an unprecedented 25%,²³ but the total amount of tobacco seized over each of the past seven years—the number of tonnes of contraband cigarettes plus loose tobacco combined—has remained surprisingly constant despite the increased number of detections and the substantial increase in prices of tobacco products in Australia over that time.²⁴

Figure 1. Amounts of loose tobacco and contraband cigarettes intercepted in sea cargo bound for Australia, and total weight of tobacco intercepted—Australia 2007-08 to 2013-14



Note: An additional 42 million sticks of undeclared cigarettes were intercepted in mail in 2013-14. Figures of undeclared cigarettes intercepted in mail for previous years not reported. Source: Australian Customs and Border Protection Services annual reports. Available from: <http://www.customs.gov.au/site/page4283.asp>

²³ Scollo M. Chapter 13. The pricing and taxation of tobacco products in Australia. Tobacco in Australia: Facts and Issues, Melbourne, Australia: Cancer Council Victoria, 2013. Available from: <http://www.webcitation.org/6QsaCaM3R>

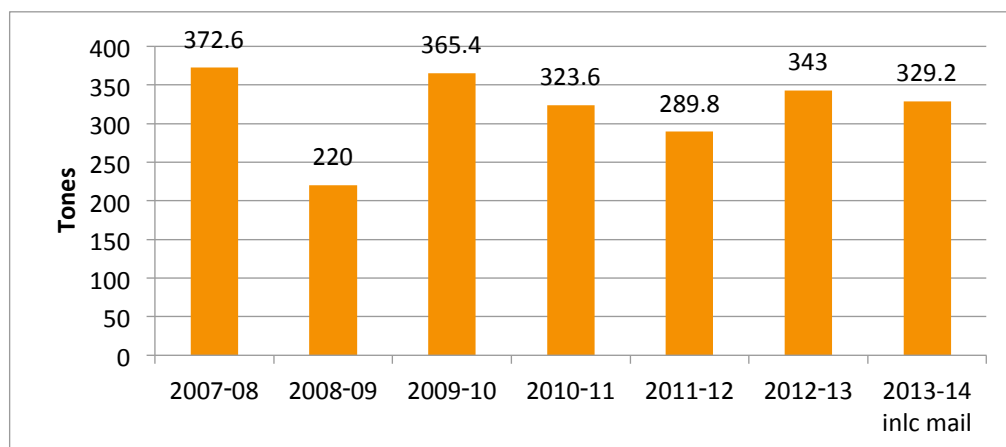
²⁴ Australian Customs and Border Protection Service. Annual report 2011–12. Canberra: Australian Government, 2012. Available from: <http://www.customs.gov.au/site/page4283.asp>.

Table 1. Amounts of loose tobacco and contraband cigarettes intercepted in sea cargo bound for Australia, and total weight of tobacco intercepted—Australia 2007-08 to 2013-14

Year	No. of detections	Tobacco (tones)	Cigarettes (millions of sticks)	Duty evaded (AUD million)	Equivalent tobacco weight (tones)
2007-08	58	287	107	114	373
2008-09	33	180	50	70	220
2009-10	42	311	68	120	365
2010-11	55	258	82	135	324
2011-12	45	177	141	125	289
2012-13	76	183	200	151	343
2013-14	81	178	147	139	296

The overall amount of tobacco intercepted in sea cargo in 2013-14 was lower than in 2012-13—see **Figure 1** and **Table 1**. Indeed, even including the cigarettes seized from international mail, data for which were included in the 2013–14 report but not in previous reports, the total amount of tobacco reported seized was lower in 2013–14 than in three of the previous six years (**Figure 2**).

Figure 2. Total weight of tobacco—cigarettes plus loose tobacco—reported seized, including mail interceptions in 2013-14 only



Source: AC&BP annual reports, 2007-08 to 2013-14 Australian Customs and Border Protection Service. Annual Report 2013-14. Canberra: ACBPS, 2014. Available from: <http://www.customs.gov.au/site/page4283.asp>

ALTERNATIVE SOURCES OF ESTIMATES NOT PRESENTED IN ASIA-14 REPORT

Other available data provide relatively modest estimates of the extent of use of illicit tobacco in Australia.

1. National Drug Strategy Household Survey—reported use of unbranded illicit tobacco

Results from the National Drug Strategy Household Survey in 2013²⁵ suggest a significant decline since 2007 in the percentage of smokers who are aware of unbranded chop-chop tobacco, who have ever smoked it, and who currently use it (Table 2).

Table 2. Use of unbranded tobacco, among smokers aged 14 years or older, 2007 to 2013

	Persons		
	2007	2010	2013
As a proportion of smokers			
Aware of unbranded tobacco	48.0	46.3	33.9#
Smoked unbranded tobacco in their lifetime	27.0	24.0	16.5#
<i>Currently smoke it</i>	6.1	4.9	3.6#
<i>No longer use it</i>	20.8	19.0	12.9#

indicates a statistically significant decline from 2007 to 2013.

2. Survey of Victorian smokers—reported use of unbranded illicit tobacco and use of cigarettes with indicators of illicit status

A study published in August 2014 in BMJ Open²⁶ analyzed cross-sectional data from the state of Victoria smokers interviewed before, during, and one year after the introduction of plain packaging. The proportion of smokers reporting current use of unbranded illicit tobacco (Table 3) was 2.3% in 2011, 2.2% in 2012 and 1.9% in 2013 (p=.46).

Table 3. Use of unbranded illicit tobacco by year – unadjusted percentages and 95% Confidence Intervals (95% CI)

	2011		2012		2013	
	%	95% CI	%	95% CI	%	95% CI
Unbranded illicit tobacco^a						
Past 12-month use	4.4	2.4 – 6.3	4.9	2.4 – 7.4	4.0	2.0 – 6.0
Current ^b use	2.3	0.8 – 3.8	2.2	0.3 – 4.1	1.9	0.6 – 3.1

^a Includes all current smokers (smokers who smoke daily, at least weekly or less than weekly (2011: n=754; 2012: n=590; 2013: n=601)

^b Current use is use daily, weekly or less than weekly

²⁵ Australian Institute of Health and Welfare. Highlights from the 2013 survey: Tobacco Smoking. Canberra: AIHW, 2014. Last update: 27 July; Viewed AIHW cat. no. PHE 145. Available from: <http://www.aihw.gov.au/alcOHol-and-other-drugs/ndshs/>

²⁶ Scollo M, Zacher M, Durkin S, and Wakefield M. Early evidence about the predicted unintended consequences of standardised packaging of tobacco products in Australia: a cross-sectional study of the place of purchase, regular brands and use of illicit tobacco. BMJ Open, 2014; 4(8). Available from: <http://bmjopen.bmj.com/content/4/8/e005873.abstract>

Two criteria strongly suggestive of illicit status of purchased cigarettes are non-compliance with Australia's packaging requirements and/or being purchased from informal sources such as friends, market stalls, or people selling from the back of vans. A survey in the state of Victoria²⁷ revealed that in 2013, 2.6% of cigarette smokers reported having purchased one or more packets of cigarettes in non-compliant packaging in the past three months. About 1.7% had purchased one or more packets from an informal seller in the past year. Most people reporting any such purchases indicated that only a very small number of such packs had been purchased over the previous quarter/year. These estimates are contradictory to the Asia-14 report estimates.

4.1.3 CONCLUSION

Data derived from sources independent of the tobacco industry suggests relatively low and stable levels of illicit tobacco in Australia.

4.2 HONG KONG

The Asia-14 report estimate claims that 33.6% of cigarettes consumed in Hong Kong in 2013 were illicit. This is a slight reduction compared to the estimate of 35.9% published in the 2012 Asia-11 report.

As with the Asia-11 report, ITIC/OE made substantial efforts to publicize the release of the Asia-14 report in Hong Kong. The Hong Kong Council on Smoking and Health (COSH) was not aware of any study being conducted in Hong Kong until ITIC/OE held its press conference on Sept 9, 2014. The report's results were reported in almost all major local media (mainly Chinese newspapers) the day following the report release with striking headlines such as "1/3 smokers in Hong Kong smoked illicit cigarettes" and "The illicit consumption in Hong Kong ranked 3rd in all the 14 markets". Most of them cited Daniel Witt, the president of ITIC, who stated that "Key drivers of illicit tobacco in the [*sic*] Hong Kong include the excessive tax increases in 2009 and 2011".²⁸ When Hong Kong COSH advocated for a tax increase in 2013, the opponents cited the Asia-11 results to oppose the tax increase.

Even though it is not possible to assess all the problems with the two ITIC/OE reports due to insufficient details regarding their methods and data, the information provided leads to the conclusion that both Asia-11²⁹ and Asia-14 estimates are the product of a defective methodology using questionable data sources.

²⁷ Scollo M, Zacher M, Durkin S, and Wakefield M. Early evidence about the predicted unintended consequences of standardised packaging of tobacco products in Australia: a cross-sectional study of the place of purchase, regular brands and use of illicit tobacco. *BMJ Open*, 2014; 4(8). Available from: <http://bmjopen.bmj.com/content/4/8/e005873.abstract>

²⁸ For The Second Consecutive Year, 1 In 3 Cigarettes Consumed In Hong Kong Are Illegal. Press Release by the International Trade and Investment Center, Oxford Economics, and Hong Kong United Against Illicit Tobacco. Available from: [http://www.iticnet.org/images/Press%20release%20\(English\).pdf](http://www.iticnet.org/images/Press%20release%20(English).pdf) [accessed 23 February 2014]

²⁹ Chen J, McGhee S, Townsend J, Lam TH, Hedley A (2015). Did the tobacco industry inflate estimates of illicit cigarette consumption in Asia? An empirical analysis. *Tobacco Control*, 0:1–7. doi:10.1136/tobaccocontrol-2014-051937

4.2.1 PROBLEMS WITH THE ESTIMATES, DATA AND METHODS

As is true for other countries covered in the report, legal duty-free consumption is underestimated by accounting for only the top 3 inbound markets while ignoring the large number of visitors from other countries in 2013 such as Japan (1 057 033 visitors) and Korea (1 083 543 visitors), for example. In addition, Hong Kong inbound residents are not included in the calculation, which falsely classifies some legal packs as illegal. Both of these methodological failures result in overestimating the size of the cigarette illicit market.

The biggest concern is the Empty Packs Survey (EPS), upon which the Hong Kong estimate is dependent. Despite repeated queries on the method of EPS raised by Clear The Air Hong Kong to OE and ITIC and a promise by OE manager Scott Livermore to provide that information, the following details of the EPS methodology have not been released:

- Methods of identifying that an empty pack was duty-paid, illicit, or duty-free. This type of information is usually not available on the packs sold in Hong Kong. Misclassification of legal packs as illicit products would result in overestimating the illicit share of total cigarette consumption.
- Reasons for selecting the 2nd and 4th quarters of 2013 for data collection (Page 158, Annex A). It is unclear whether selecting instead the low tourist season of the 3rd quarter would generate a different result, but given the important role tourists play in Hong Kong's estimate, this issue should have been addressed.
- The sampling method in each district, specifically, the method of selecting locations within a district where the empty packs were picked up and rules regarding sampling a particular location multiple times. The sampling method has profound implications for generating unbiased results.
- The specific timing of data collection according to the time of day and the part of the week. The timing could influence if these packs were discarded by commuters, late night partygoers or by weekend/holiday visitors.
- Calculation of sampling weights. In addition to weighting the data according to the population size, it is not clear whether the weights were also adjusted for commuting patterns and/or disproportional number of tourists temporarily residing in certain districts. The failure to account for the presence of tourists and commuters will generate an upward bias in the estimate of the size of the illicit cigarette market.

In addition to the lack of details on the EPS, there are no details about the 2013 consumer survey that was used to generate an alternative estimate of illicit cigarette consumption in Hong Kong.

The report is also confusing at times. For example the graph on page 29 as well as the information on page 63 show no change in the volume of illicit cigarette consumption; however, the text on page 29

explicitly lists Hong Kong among countries where the volume in illicit cigarette declined from 2012 to 2013. On page 66 the report states that “The bulk of the Non-Domestic share in Hong Kong remains Duty-Free products, the incidence of which far outweighs estimates of Non-Domestic Legal inflows.” Yet, the report is clear about the Duty-Free products being also included in the Non-Domestic Legal inflows (p. 34).

4.2.2 OTHER ESTIMATES OF ILLICIT CONSUMPTION IN HONG KONG

Using scientifically valid data and a transparent methodology, a group of academics used a “top-down” approach to estimate the size of illicit cigarette consumption in Hong Kong.³⁰ Unlike the ITIC/OE reports, this study accounted for Hong Kong inbound residents and various groups of tourists based on the length of their stay in Hong Kong. It also conducted a sensitivity analysis to test the robustness of its results to various assumptions. The results showed that between 8.5% and 14.2% of total cigarette consumption in Hong Kong in 2012 was illicit. This means that the Asia-11 report inflated the estimates by 133–337%.

A population-based telephone survey conducted by Hong Kong COSH and School of Public Health, University of Hong Kong in 2013 among randomly sampled current smokers (n=800) aged 15-65 revealed that only 8.8% claimed that they had often bought lower cost cigarettes in the past 6 months. Among those who had bought the low-cost cigarettes, 28.5% believed that they were smuggled from other places. Daily consumption of smokers who often bought low-cost cigarettes was 16.3 sticks compared to 14.1 of the average daily consumption. If the smokers who often bought low-cost cigarettes only smoked low-cost cigarettes and all of the low-cost cigarettes were smuggled, then the proportion of illicit consumption from this survey would be 10.2% ($8.8\% \times 16.3 / 14.1$). If only 28.5% of these low cost cigarettes were smuggled, illicit cigarettes would represent only 2.9% of total consumption. These estimates are substantially lower compared to the ITIC/OE estimates in the Asia-11 (35.9%) and Asia-14 (33.6%) reports.

4.3 BRUNEI

As late as 27 August 2014 Oxford Economics contacted the Ministry of Health in Brunei and requested data on the volume of legal duty-paid cigarettes and other tobacco products, as well as the value of excise duty paid in local currency for 2012 and 2013. This request reveals that seven business days before the report was officially presented on September 5, 2014, OE was still looking for the basic data required for calculating their estimates.

³⁰ Chen J, McGhee S, Townsend J, Lam TH, Hedley A (2015). Did the tobacco industry inflate estimates of illicit cigarette consumption in Asia? An empirical analysis. *Tobacco Control*, 0:1–7. doi:10.1136/tobaccocontrol-2014-051937

It was perhaps this rather late attempt to collect essential data that caused the estimates for Brunei to rely on the methodologically weak “bottom-up” approach to estimate the size of the domestic cigarette market (p.48). This estimate is even more questionable in the case of Brunei since the report claims there are no national data on the average daily cigarette consumption and “borrowed” this statistic from neighboring markets by calculating an average (p.185). No information is provided on the method of calculation. A transparent study would have disclosed which of the neighboring markets had been considered and specified whether a simple or weighted average had been used.

Even though the EPS was done in Brunei in the 2nd quarter of 2013, it is not clear why this was necessary if, in the end, the report considers all cigarettes consumed in Brunei to be illicit since May 2013 following PMI’s departure from the country. Similarly, while the report recognizes (p. 153) that “passengers may still bring in products and pay the appropriate duty at the border,” it makes a broad assumption that these volumes are negligible “in the absence of available data to suggest otherwise.”

It is also not clear why the conversion of loose tobacco to cigarettes applied in Brunei (0.949 grams of loose tobacco per cigarette) is different compared to Australia (0.8 grams per cigarette) and Thailand (0.75 grams per cigarette).

Brunei did not have any tax increase in 2013, therefore the higher share of illicit consumption in total cigarette consumption in 2013 compared to 2012 could not be blamed on a tax increase. It was most likely a result of lower cigarettes consumption, both legal and illicit (p. 49).

4.4 INDONESIA

The report states (p. 188) that the data source for the smoking prevalence is WHO, but the data source for the average daily consumption is a consumer survey data 2013. No details regarding this survey are provided on page 188. It is necessary to go back to page 70 and guess that the 2013 survey cited on page 188 could be a part of the Global Consumer Trends Surveys conducted in 2013 on behalf of PMI. The report provides no details about the Global Consumer Trends Surveys such as the sample size and sampling frame. Without such basic information, it is impossible to judge the quality of the data generated by this survey.

Even though a reader learns that Indonesia experienced a significant increase in tax loss (in absolute terms) from 2012 to 2013 due to illicit trade while simultaneously increasing tobacco tax revenue, the report does not point out that the tax revenue increase (from IDR 90.5 trillion to 103.6 trillion) was much larger than the alleged increase in the estimated tax loss (from IDR 0.1 trillion to 0.6 trillion). Additionally, the Asia-14 report presents the increase of tax revenue loss in a misleading way, stating that there was a 583.6% increase in tax revenue losses as against a 14.4% increase in tax revenues collected.

4.5 MALAYSIA

The Asia-14 report presents four different estimates of the share of illicit cigarette consumption in Malaysia using different methods and different data sources (p.190). They range from 16.5% to 54.1%

with the estimate of 35.6% presented in the Asia-14 report. Such a wide range of estimates calls into question the reliability of such estimates.

The International Tobacco Control (ITC) Policy Evaluation Project that collects data via cross-sectional surveys using multistage stratified cluster sampling method estimates that the share of illicit cigarettes in Malaysia was 16.5% of total consumption based on data collected from May 2011 to March 2012.³¹ This ITC estimate is almost identical with the lowest estimate (estimated by an academic) cited and less than half of the estimate presented in the Asia-14 report.

The estimate presented in the Asia-14 report is based on the EPS, which is conducted in Malaysia by AC Nielsen on behalf of Royal Malaysian Customs with BAT, JTI, and PMI as participating companies. The methodology of this survey has been criticized both by academics and the public health community familiar with the data collection. The main criticism points to collecting packs primarily in areas where the likelihood of smokers consuming illicit cigarette is higher relative to other localities. For example, the public litter bins selected for data collection are located in illicit cigarettes hotspots such as stadiums and markets, or in rural areas known for large representation of immigrant workers such as palm oil estates where many poor Indonesian migrant workers reside.

4.6 PHILIPPINES

The Asia-14 report states that on 1 January 2013 the excise tax increased by 341.2% (from 2.72 to 12 pesos) for the majority of cigarettes, and this contributed to a 59.4% rise in the pack price of the most sold brand (p. 28). Even though this price increase was significant in relative terms, the report (p. 107) also shows that the pack price of the most sold brand increased from approx. 16 pesos in 2012 to only 25 pesos (less than USD 0.60) in 2013. This means that despite the price increase, cigarettes in the Philippines remain very affordable, especially when cigarettes are sold individually rather than by pack.

Still, the report claims that the 2013 tax increase was the main driver of the purported increase in illicit consumption in 2013, which it estimated at 18.1% of total consumption. This estimate is lower than in seven other Asia-14 countries, but the report emphasizes that the Philippines experienced the largest volume increase in Illicit Consumption (an increase of 198%) among the Asia-14 countries. While the report notes that there was a 3.0% reduction in Total (legal and illicit) Consumption in 2013 compared to 2012 and acknowledges that the “super low price” segment’s share of Legal Domestic Sales more than doubled to 39.4% in 2013, and that the share of all other segments (“premium price”, “medium price”, and “low price”) declined (p. 106), it claims that the decline in Legal Domestic Sales was wholly offset by a rise in Illicit Consumption (p. 108).

Allegedly an estimated 89.8% of Illicit Consumption and 16.3% of Total Consumption in 2013 was attributable to Domestic Illicit Consumption (p. 112), which was estimated to have grown by 181.2% or 11.0 billion cigarettes (p. 12). This is consistent with the assertions of Philip Morris Fortune Tobacco Corporation (PMFTC) that its main competitor, Mighty Corporation, had under-declared its production volumes to evade taxes, which allowed Mighty to outprice PMFTC brands and eat into PMFTC’s

³¹ Liber AC, Ross H, Omar M, Chaloupka FJ. The Impact of the Malaysian Minimum Cigarette Price Law: Findings from the ITC Malaysia Survey. Tob Control doi:10.1136/tobaccocontrol-2014-052028. Available at: <http://tobaccocontrol.bmj.com/content/early/2015/03/25/tobaccocontrol-2014-052028.full>

monopolistic market share.³²

In addition to making claims of massive domestic illicit trade, the Asia-14 report continues its scaremongering by claiming that the Philippines was the main market for consumption of Counterfeit cigarettes, with counterfeit volumes rising sharply by 800%. A careful reader will discover, however, that despite this "huge" increase, the share of counterfeit cigarettes in total consumption is only 1.8%.

While the report highlights its estimates of alleged tax losses from illicit trade, it fails to point to the significantly higher tax revenues after the 2013 tax increase (p. 111); for tobacco excise alone (not including VAT), the government collected PHP 70.4 billion in 2013, which is higher by PHP 37.5 billion or 113.7% compared to 2012. Excise revenue gains were thus 454% higher than the report's estimated excise tax losses (PHP 12.7 billion) in 2013. This revenue gain was achieved despite the industry's customary practice of frontloading/forestalling at the end of 2012 (in anticipation of the January 2013 tax increase), which contributed to lower 2013 excise revenues, something the Asia-14 report fails to acknowledge.

Fortunately, in addition to having increased excise collections, the 2013 tax increase has also reduced tobacco consumption. A March 2014 survey³³ shows that overall smoking prevalence in the Philippines decreased from 28.3 percent to 26 percent from December 2012 to March 2014, with the largest declines among the very poor (from 38.0 percent to 25.0 percent) and among younger adults aged 18 to 24 years (from 35.0 percent to 18.0 percent).

4.7 TAIWAN

The Asia-14 report estimates that 8.7% of all cigarette consumption in Taiwan is illegal and also presents three other estimates, ranging from 3.5% to 13.5%, using alternative methods and data sources (p.195). A survey conducted by the Taiwan Administration in 2011 found that only 4% of Taiwanese smokers admitted having purchased contraband tobacco products in the past year.³⁴ This indicates that the lower bound estimate is probably closer to reality and that the Asia-14 report overestimated the share of the illicit market by more than 100%.

The Asia-14 report's estimate is based on an incorrect report of the legal domestic sales of 35.5 billion cigarettes in 2013, because the 2013 official data show that the total cigarette sales was 38.4 billion. If the correct estimate were used, the share of illicit cigarettes in total consumption would be 7% lower (8.1% instead of 8.7%).

In addition, the EPS, one of the primary data sources for almost all countries presented in the report, was replaced by a Consumer Panel Survey in Taiwan. No reason was provided as to why a different data collection method was used in Taiwan.

³² Cuevas-Miel, L. (2014, February 13). YOSI WARS: Philip Morris HQ Tells Investors Mighty Corp Is Dodging Taxes. *Interaksyon*. Retrieved from <http://www.interaksyon.com/business/80684/yosi-wars--philip-morris-hq-tells-investors-mighty-corp-is-dodging-taxes>

³³ Social Weather Stations (SWS). Survey on Usage, Attitudes and Behavior of Filipinos Towards Tobacco, March 2014.

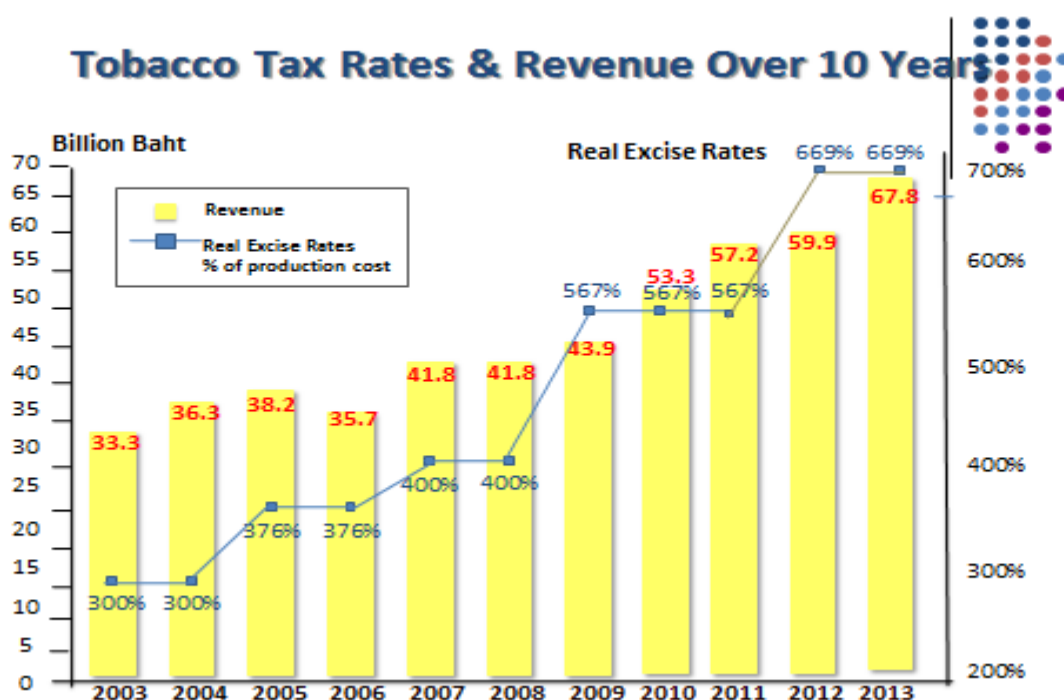
³⁴ 2013 Taiwan Tobacco Control Annual Report. Health Promotion Administration. Taiwan. 2013

Taiwan did not have any tax increase in 2013, therefore the higher share of illicit consumption in total cigarette consumption in 2013 compared to 2012 cannot be blamed on a tax increase.

Even though a reader learns that Taiwan experienced a significant increase in tax revenue losses (in absolute terms) from 2012 to 2013 due to illicit trade while simultaneously increasing tobacco tax revenue, the report does not point out that the net gain for the tax revenue authority in 2013 was still US\$ 16.8 million even after accounting for the estimated revenue loss.

4.8 THAILAND

Thailand does not fit the report's rhetoric about the link between higher taxes and higher illicit market penetration. The report demonstrates that despite the tax increase in 2012, the market share of illicit cigarettes decreased from 2.9% in 2012 to 2.3% in 2013 and the estimated revenue loss declined from THB 2.4 billion in the fiscal year 2011/2012 to THB 1.7 billion in the fiscal year 2012/2013. At the same time, Thailand increased its tobacco tax revenue. Moreover, thanks to its policy of regular tobacco tax increases, Thailand was able to increase its excise tax revenue from THB 33.3 billion in 2003 to THB 67.8 billion in 2013³⁵ while having one of the lowest estimate of illicit tobacco trade.



Source: Ministry of Finance, Thailand, 2014

Even though the authors of the report believe that Thailand has high tobacco taxes that reached 87% of ex-factory selling price for manufactured cigarettes in August 2012, the illicit cigarette trade in Thailand is very low. In addition, the impact of the recent tax increase on tobacco products market prices was negligible and the prices of the most popular local and international cigarette brands even declined -

³⁵ Ministry of Finance, Thailand, 2014

from USD 2.16 in 2012 to USD 2.06 in 2014 for local brands, and from USD 2.66 in 2012 to USD 2.06 in 2014.^{36,37} This means that the 2012 tobacco tax increase was not large enough to impact cigarette prices as it was absorbed by the tobacco companies. This is a signal that Thailand needs much higher tax rate in order to impact cigarette retail prices. Tobacco tax policy as public health measure works only if prices go up as it helps smokers to quit and prevents young people from smoking initiation.

4.9 Vietnam

Both the Asia-11 and Asia-14 reports were heavily publicized in the local media and used by the industry to lobby against higher tobacco taxes during the 2013-2014 excise tax law amendment process.

The Asia-14 report estimates that illicit consumption in Vietnam represented 20.7% of total domestic consumption in 2013. This estimate is remarkably close to the estimate of 21.6% provided by the Vietnam Tobacco Association (VTA) that is also highlighted in the report. The report does not provide any information about the methodology employed by VTA to generate their estimate.

The EPS, the primary source of data to estimate the size of the illicit cigarette market in Vietnam, was conducted in the 15 largest cities covering 15.5% of the total population. Since the consumption of illicit cigarettes is substantially larger in urban versus rural areas,³⁸ the Asia-14 estimate for Vietnam suffers from an upward bias.

A recent empirical analysis in Vietnam using publicly available data showed that illicit consumption in Vietnam ranged from 0.7% - 6%³⁹ of total domestic consumption, an estimate substantially lower compared to the Asia-14 report's estimate.

The report claims (p.30) that Vietnam experienced an increase in tax losses due to illicit cigarettes between 2012 and 2013. However, the estimated increase in the tax loss was only about 3.1% (about US\$ 9 million) while the total cigarette tax revenue increased by 15.4% (about US\$ 110 million) during the same time. Since there was no tobacco tax increase in Vietnam from 2008 to 2014 and Vietnam applies ad valorem tax, where the amount of tax collection is a function of the producers' price, the tax revenue increase was entirely driven by tobacco industry price increases. Therefore, the increase in tax losses due to illicit cigarettes cannot be blamed on a tax increase. This situation also puts into question the tobacco industry rhetoric about prices/taxes driving the illicit trade and the industry effort to prevent illicit trade by opposing tax increases. Obviously, when it comes to industry-driven price increases, the industry is less eager to make the association.

³⁶ SEATCA. (2013). ASEAN Tax Tobacco Tax Report Card: Regional Comparison and Trends.

³⁷ SEATCA. (2015). ASEAN Tax Tobacco Tax Report Card: Regional Comparison and Trends.

³⁸ Nguyen MT, Dao ST, et al (2014). Portrait of Illicit Cigarette Trade in Vietnam (unpublished report).

³⁹ Nguyen MT, Denniston R, Nguyen HT, et al. The empirical analysis of cigarette tax avoidance and illicit trade in Vietnam, 1998-2010. *PLoS One*. 2014;9:e87272.

5 CONCLUSIONS

The Asia-14 report lacks sufficient details both on its methods and on the data used to generate the estimates. This prevents a fuller review and critical assessment of the methodology and data used by ITIC/OE to assess their validity. The lack of details makes it impossible to replicate the results.

This critique points to some shortcomings that could be identified given the level of detail provided in the report. These faults are more than sufficient to cast doubt on all estimates presented in the study.

The report acknowledges in words but fails to factor in the considerable uncertainty surrounding the estimated size of the illicit tobacco market in all countries. Yet the results have been presented to governments of the participating countries with a high level of confidence.

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