



Still Defective: Asia Illicit Tobacco Indicator 2017 Report



Southeast Asia Tobacco Control Alliance

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Suggested citation:

Ross, H. (2020). *Still Defective: Asia Illicit Tobacco Indicator 2017 Report*. Bangkok: Southeast Asia Tobacco Control Alliance.

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About SEATCA (www.seatca.org)

SEATCA is a multi-sectoral non-governmental alliance promoting health and saving lives by supporting ASEAN countries to accelerate and effectively implement the evidence-based tobacco control measures contained in the WHO Framework Convention on Tobacco Control. Acknowledged by governments, academic institutions, and civil society for its advancement of tobacco control in Southeast Asia, the WHO bestowed upon SEATCA the World No Tobacco Day Award in 2004 and the WHO Director-General's Special Recognition Award in 2014. SEATCA is an official NGO Observer to the WHO FCTC Conference of Parties and a co-initiator of the Global Center for Good Governance in Tobacco Control (GGTC).

Cover illustration, layout, and graphics design by Timur Communication, 1-5-27, Egate, Lebu Tunku Kudin 2, 11700 Gelugor, Penang, Malaysia.

Published by the Southeast Asia Tobacco Control Alliance (SEATCA) Thakolsuk Place, Room 2B, 115 Thoddamri Road, Dusit, Bangkok 10300 Thailand. Telefax: +66 2 668 3650



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The history of Philip Morris International (PMI)-funded reports on illicit trade in tobacco products in Asia

In the early 2010s, Philip Morris International Management SA, an affiliate of Philip Morris International (PMI), commissioned the International Tax and Investment Center (ITIC) and Oxford Economics (OE) to produce the first in a series of illicit trade reports covering 11 Asian countries. This PMI investment was inspired by the effectiveness of similar regional studies conducted annually in the European Union since 2006 in lobbying efforts against tax increases.¹ The subsequent reports expanded their coverage to 16 Asian countries/territories.

In 2017 the ITIC left the project, as it stopped accepting money from the tobacco industry and removed tobacco executives from its board. This was a result of a pressure campaign from the public health community exposing ITIC's agenda to assist the tobacco industry in opposing higher tobacco taxes. Tobacco tax increases that reduce affordability are the most effective and cost-effective ways to reduce smoking prevalence, and thus promote public health.²

The first two reports in these series, published in 2013 and 2014, had an important disclaimer: "...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 statement was brought to public attention by a critique commissioned by the Southeast Asia Tobacco Control Alliance (SEATCA)³; it damaged the credibility of the reports and was later removed. Any similar legal protection for the authors of the report is now likely coming from the very explicit separation between the data generating and the analytical functions. In other words, OE is only responsible for the analysis, without assuming any responsibility for the quality of the data being provided by PMI, and PMI outsources the data collection to external suppliers.

"...should any party choose to rely on the report, they do so at their own risk (ITIC/OE report disclaimer, 2013 and 2014)."

Who is Oxford Economics?

"In September 2017, OE became a recipient of one of 32 PMI awards through the PMI IMPACT initiative to develop and implement projects to tackle illicit trade..."

Founded in 1981, Oxford Economics (OE) claims to be one of the world's leading independent global advisory firms that forecasts external market trends and assesses the economic, social, and business impact of these trends. Their involvement with the Asia Illicit Tobacco Indicator in the early 2010s resulted in a continuous engagement with the tobacco industry, specifically PMI. In September 2017, OE became a recipient of one of 32 PMI awards through the PMI IMPACT initiative to develop and implement projects to tackle illicit trade and related crimes in the European Union.⁴ The OE website, accessed March 1, 2020, does not mention any tobacco companies among its list of clients.

Our Critique

Our critique of the 2017 Asia Illicit Tobacco Indicator report is structured as follows: First, we scrutinize the quality of the data used by OE in the analyses; second, we provide comments on the methodology; and third, we expose the deceptive presentation of the results. We close this critique with a discussion and recommendations for policy makers and other stakeholders.



Data Quality

• Data primarily sourced from the tobacco industry and its affiliates

In the Disclaimer of the report, the OE expresses its gratitude for “data received from public sector and the industry stakeholders”. Since the public sector data is mentioned first, this gives an impression that the public sector is the main data source for the study. In fact, the opposite is true; the overwhelming majority of the data comes from the tobacco industry: either directly from PMI or generated under specific TORs between PMI, other tobacco companies, and consulting groups (referred to in the report as “independent research companies”. These TORs are not disclosed.

“...the overwhelming majority of the data comes from the tobacco industry: ...”

Image 1: TOR says “all relevant data” provided by the tobacco industry

1.4 Methodology

- Compile, analyse, and validate existing market research on illicit trade covering 2017 data. This will consist of Empty Pack Surveys and additional forms of research such as:
 - Industry market research surveys,
 - Studies commissioned by competitors, Governments, and Non-Governmental Organisations (NGOs), and
 - Alternative data sources (e.g., seizure data, assessment of smoking prevalence, etc.).
- Analyse and validate domestic duty-paid sales volumes.
- Differentiate legal and illegal non-domestic or non-duty-paid consumption where relevant (e.g., through consumer surveys, analysis of passenger data, tourism statistics). The supplier is invited to propose a method to split legal and illegal non-domestic or non-duty-paid consumption.
- Cross-check with alternative data sources (e.g., seizure data, assessment of smoking prevalence levels, studies commissioned by competitors, Governments, NGOs, etc.).
- Interview external subject matter experts to cross-reference data and gather qualitative inputs. These experts can include government officials (e.g., law enforcement), researchers, and National Manufacturers' Associations.

- PM and its local affiliates will assist by providing all relevant data.

(Source: *The Asia Illicit Tobacco Indicator 2017: Methodological Overview*, Page 51)

- ***Oxford Economics does not examine the data quality***

As one dives into the Methodology Overview, it becomes clear that OE does not have control of the data quality that it uses as the primary input to its model. PMI outsources the data collection to a large number of organizations, each of them bound by its TOR with PMI. This means that even if the OE model were a well-designed model, the results would be only as good as the inputs into the model. This section specifically examines the quality and the integrity of the data.

“OE does not have control of the data quality that it uses as the primary input to its model. PMI outsources the data collection to a large number of organizations, each of them bound by its TOR with PMI.”

- ***EPS methodology driven by the tobacco industry, not by the experts***

The primary source of data is the Empty Pack Surveys (EPS). All of these surveys are commissioned by the tobacco companies. It is clear that these companies have a say about the sampling plan, sample size, and the geographical location of these surveys. Even if these surveys are conducted by “independent research companies”, there is nothing independent about a client dictating the methodology of data collection to research companies that should have the ability to do this themselves. The sampling plan is said to vary based on “the participating manufacturer(s)’ share of the legal market”. This share has nothing to do with the share of illicit market, thus becomes an incorrect input into the sampling plan. A carefully designed sampling plan can drive the survey results in a predetermined direction. For example, the EPS conducted in areas known to have migrant workers increases the probability of finding a disproportionately higher share of foreign packs that could be incorrectly classified as illicit.

- ***EPS sample size calculation is wrong***

Another problematic issue with the EPS is the sample size calculation. The sample size should depend on the expected proportion/share of the illicit trade in the area, and not the population size.⁵ Reputable research companies should not be making such a fundamental mistake.

- ***EPS is not representative***

The representativeness of the sample is key to the reliability of the EPS methodology for estimating the size of the illicit market. The report makes no attempt to convince a reader that the EPS provides a representative sample of the population being studied, smokers in this case. In fact, the EPS description in the Methodology Overview reveals that the EPS in Australia does not include rural areas and that the samples in Cambodia, Indonesia, Laos, Myanmar, and Vietnam represent only a small share of the population. One might also wonder how the EPS is done in Singapore, a country famous for its lack of litter.

- ***EPS does not account for single stick sales***

“...EPS provides a distorted picture for many markets presented...”

The EPS only works in places where the majority of smokers purchases cigarettes in packs. In many countries covered by the report, the sale of single sticks is common.⁶ This means that the EPS provides a distorted picture for many markets presented in this report. Either those who commissioned the data collection or those who collected the data must be

aware of this shortcoming, since there was an attempt to correct for it, but only in one country, the Philippines, and the correction method was not adequately explained.

• **Obscure rules for classifying illegal packs**

When it comes to pack survey quality control, the main feature of a pack that allows its classification as legal or illegal is the presence of tax stamps, but in many countries/territories covered by the report, tax stamps are not used (e.g. Australia, New Zealand, Pakistan, Korea, Singapore). Was the health warning alone used in these countries to classify a pack as legal/illegal? How was a conflict between the information provided by a tax stamp and a health warning handled?

• **Uncertainty about quality control**

The report does not mention double coding of the collected packs, a standard quality control procedure. It is not clear whether each collected pack was uniquely labeled, how long the packs are retained, and if they are available for re-examination.

• **Inconsistent assumptions with respect to the counterfeits**

It seems that the test for counterfeit cigarettes was only applied to packs coming from abroad, and not to the domestic legal packs. The authenticity test for tax stamps was not performed, except in Indonesia where those checks were done outside of the scope of the EPS.

• **No attempt to cross-verify the EPS estimates**

Given the amount of resources invested in the EPS, it is surprising that there is no attempt to cross-verify the EPS data by obtaining packs from properly discarded trash.

• **Inconsistent application of the method across countries**

Instead, there are multiple waves of data collected throughout 2017 in several countries (and with very different results in the same country!) without an explanation why this was necessary and why in those particular countries, whereas other countries had only one wave of data collection in 2017 (Image 2).

Image 2: Inconsistent application of research method across countries

Methodology: Stage 1 – Empty Pack Surveys

Market	Date conducted	Research company	Sample size (packs)	Non-Domestic Incidence	Research methodology
Myanmar	2017 Q4	Global Vox Populi Participating company PM	3,000	1.4%	10 largest cities were selected covering 15.3% of the total population.
New Zealand	2017 Q2, Q4	MSIntelligence Participating companies PM, BAT, and Imperial Tobacco	2,000 / 2,000	25.3% / 10.5%	5 largest cities were selected covering 56.4% of the total population.
Pakistan	2017 Q4	Foresight Research Participating company PM	15,973	11.0%	36 cities (urban) and 60 villages (rural) were selected for both surveys covering 97.6% of the population.

continued

Image 2: Inconsistent application of research method across countries *(continued)*

Philippines	2017 Q3	MSIntelligence Participating company PM	10,200	6.8%	57 cities in 55 provinces were selected covering 85% of the total population. Methodology was modified in 2017 to include single-cigarette sales by purchasing open cigarette packs on sale in randomly selected sari-sari stores, with market variant and pack sizes chosen according to loose quotas based on Nielsen Retail Audit.
Singapore	2017 H1, H2	TNS Participating companies PM, BAT, and JTI	14,103 / 14,239	15% / 12%	32 locations in 5 districts were selected for both surveys.
South Korea	2017 Q1	Global Vox Populi Participating company PM	2,000	3.8%	2 largest cities were selected covering 26.1% of the total population.
Thailand	2017 Q4	Nielsen Participating company PM	10,000	6.6%	36 largest cities were selected covering 64.3% of the total population.
Vietnam	2017 Q4	Global Vox Populi Participating company PM	10,000/ 10,000	31.6%	21 largest cities were selected for both surveys covering 16.3% of the total population. The EPS conducted in Vietnam probably over-estimates Non-Domestic Incidence as the coverage fails to capture the pattern of Inflows outside the major cities, which are likely to be much less sizable. For the purposes of this Report, and to provide a more complete representation of the market, we therefore scale down the Non-Domestic Incidence level from the EPS using supporting evidence provided by the Vietnam Tobacco Association.

(Source: *The Asia Illicit Tobacco Indicator 2017: Methodological Overview*, Page 18)

• **A missed opportunity to assess the trend using a scientific approach**

The value of the EPS could be enhanced if packs were collected in the same fashion over time and the results were compared to a determined trend. Yet there is no mention in the Methodology Overview or in the Report whether the same locations were surveyed every year or during the same year (if multiple waves of data collection occur). Were different locations surveyed every year/ wave?

• **Methods of collecting supplementary data are not transparent**

Apart from the EPS, the OE relies quite heavily on other data, but very little information is provided about this supplementary data collection. For example, the sample size calculation for consumer surveys is not reported, the questionnaires are not available, and the description of the survey in Australia is completely missing.

“Apart from the EPS, the OE relies quite heavily on other data, but very little information is provided about this supplementary data collection.”

• **Applied methods leading to biased estimates**

Nevertheless, it is clear that the survey mode in New Zealand (telephone and online interviews) could not result in observation of packs, and that both smoker surveys are likely tainted by a self-reporting bias, a weakness that the report was explicitly trying to avoid when using the EPS.

• **Domestic supply of illicit products by tobacco industry downplayed**

Domestic illicit consumption is estimated based on retail audits, erroneously assuming that domestic illicit cigarettes are only distributed via the official retail network and that these sales will be captured in accounting records. The retail audit was only performed in the Philippines and in Pakistan, but the information provided about the data collection does not permit evaluation of the quality of the results. In Indonesia, the size of domestic illicit consumption is based on an unpublished report with no information on the methodology used to generate those estimates. The report thus implies that domestic illicit consumption exists only in 3 out of 16 countries covered by the report. Yet, the domestic illicit market represents more than 59% of the total illicit cigarette market in the region.

• **Non-transparent “adjustment” of legal sales data**

The data on legal sales are highly inconsistent and are often “adjusted” in a non-transparent fashion, and the impact of these “adjustments”/inconsistencies on the final results is not discussed. Both the Methodology Overview and the report (Image 3 and 4) give the impression that the data on legal sales are taken primarily from official government statistics, but, in fact, official statistics are used only in 3

“...official statistics are used only in 3 cases (Hong Kong, Singapore, and New Zealand), while the majority of the legal sales data come directly from PMI, consulting groups associated with PMI⁷, or that official data are in some way “adjusted”.

cases (Hong Kong, Singapore, and New Zealand), while the majority of the legal sales data come directly from PMI, consulting groups associated with PMI⁷, or that official data are in some way “adjusted”.

Image 3: Estimates for legal domestic sales supposedly from official data

- The starting point underpinning the modelling process is an estimate for Legal Domestic Sales for each market.
- Estimates for each market were based on a variety of sources depending on the availability of data.
- For a number of markets, the government publishes official statistics on Legal Domestic Sales that are widely accepted by all relevant stakeholders and market participants. Where available, these estimates of Legal Domestic Sales have been incorporated within the modelling process.
- To measure Legal Domestic Sales, our preference was to use official statistics on duty-paid sales, subject to availability. If official data was not available, we used In-Market Sales (IMS) data provided by the industry.

(Source: *The Asia Illicit Tobacco Indicator 2017: Methodological Overview*, Page 7 and *The Asia Illicit Tobacco Indicator 2017: Executive Summary*, Page 7)

Image 4: Most data sourced from tobacco industry, primarily PMI

Methodology:

Stage 1 – Legal Domestic Sales

Market	Methodology for estimating LDS
Australia	Actual volumes of tobacco clearances recorded by the Australian Taxation Office and the Department of Home Affairs were used, adjusted to account for tobacco products destroyed following the introduction of plain packaging legislation in 2012 (sourced from the Australian Treasury Department).
Cambodia	Total industry volume based on PM and distributor estimates for 2016, grown forward using data on the retail volume of cigarettes from Euromonitor International Passport 2018.
Hong Kong	Sales of duty-paid tobacco, sourced from the Hong Kong Customs & Excise Department.
Indonesia	Actual shipments for PM brands and PM estimates for other manufacturers based on Nielsen Retail Audit, adjusted to reflect the proportion of Domestic Illicit Consumption that includes under-declaration, used, and Counterfeit Excise Tax stamps, sourced from Satriawan et al., Economics and Business Research and Development Agency (EBReDA), Universitas Gadjah Mada, Yogyakarta, Indonesia. Unpublished Report, 2018.
Laos	Total industry volume based on PM and distributor estimates for 2016, grown forward using data on the retail volume of cigarettes from Euromonitor International Passport 2018.
Macao	Actual shipments for PM brands and PM estimates for other manufacturers based on Nielsen Retail Audit.
Malaysia	Distributor-to-trade volume based on Confederation of Malaysian Tobacco Manufacturers (CMTM) for top 3 companies (PM, BAT, and JTI), and PM estimates on other manufacturers based on Nielsen Retail Audit.
Myanmar	Total industry volume based on PM estimates for 2016, grown forward using data on the retail volume of cigarettes from Euromonitor International Passport 2018.
New Zealand	Annual tobacco returns filed by manufacturers and importers with the New Zealand Ministry of Health.
Pakistan	Actual shipments for PM and BAT brands based on industry exchange (PM volume is based on tax-paid shipments and BAT volume is based on factory clearance).
Philippines	Industry volume based on Bureau of Internal Revenue Statement of manufactures' ex-factory withdrawals, adjusted for actual shipments for PM. While withdrawals reflect the volume of cigarettes manufactured and therefore duty-paid, shipments reflect actual volumes sent to distributors and retailers for retail, and is therefore is a better measure of sales.
Singapore	Sales of duty-paid tobacco, sourced from Singapore Customs.
South Korea	Total industry volume based on distributors sales to retailers, provided by Hankook Research.
Taiwan	Actual shipments for PM brands and PM estimates for other companies based on Nielsen Retail Audit.
Thailand	Actual shipments for PM brands and PM estimates for other manufacturers.
Vietnam	Total industry based on Vietnam Tobacco Association and key company breakdown based on PM estimates, adjusted to reflect loading production driven by the Excise Tax increase implemented in January 2016.

(Source: *The Asia Illicit Tobacco Indicator 2017: Methodological Overview, Page 8*)

Methodology

The methodology is plagued by **arbitrary choices, undisclosed methodological steps, problematic definitions, and mistakes.**

• *Combining data generated by different methods can result in bias*

The data entered into the OE Illicit Trade Flows Model come from a variety of sources, and these data are being collected using a variety of methods. That on its own is problematic, because each method has different strengths and weaknesses, and combining data obtained using different methods introduces a bias. In some cases, the direction of the bias is known; in some cases, it is not. Nevertheless, the implications of pulling together such diverse data sources into one model are not explicitly addressed.

• *Results across countries are not comparable*

In addition, the employment of different methods of data collection across countries makes the country results incomparable.

“...different methods of data collection across countries makes the country results incomparable.”

• *Non-transparent “adjustment” of EPS data*

The OE takes the liberty, in some cases, to “adjust” the EPS data without disclosing what adjustments were done or how they impact the results. For example, it analyzes the EPS in order to identify outliers “inconsistent with specific market intelligence” If outliers are identified, “the results are adjusted, and the remainder of the survey is reweighted accordingly.” In the case of Vietnam, the OE simply did not like the EPS results (ostensibly due to the lack of rural coverage, which did not seem to present a problem in Australia), so they scaled down the estimate “using supporting evidence” provided by the tobacco industry in Vietnam. The size of the scaling down or the type of “supportive evidence” is not disclosed.

“The OE takes the liberty... to “adjust” the EPS data without disclosing what adjustments were done or how they impact the results.”

• *The need for supplementary data not justified*

For some markets, the OE decided that the EPS needs to be supplemented by other sources (Image 5).

Image 5: Supplementary data sources

- Alternative sources used for estimates of Illicit Consumption included:
 - **Retail audits:** Pakistan and the Philippines (for estimation of Domestic Illicit).
 - **Academic research:** Indonesia (for estimation of Domestic Illicit).
 - **Other surveys:** Australia and New Zealand for the estimation of RYO loose tobacco consumption, and Taiwan where the topography (with 70% of the land-mass covered by mountainous terrain) makes it difficult to undertake an Empty Pack Survey that can be considered representative of the market.

(Source: *The Asia Illicit Tobacco Indicator 2017: Methodological Overview, Page 16*)

If the OE was not in charge of the EPS, how could it know that in a particular market this survey was “insufficiently representative”, or that it did not “fully capture a key element of Illicit Consumption” (Image 6)? Was the

supplementing of the EPS arbitrarily decided if the EPS results did not align with the expectation of the funder? This could be the case in Taiwan, where the results of the EPS were completely disregarded due to difficult topography. If people live in Taiwan, they litter there, and packs should be available for collection.

Image 6: Unjustified use of supplementary data

- For some markets, other sources were also used to estimate Illicit Consumption. This was necessary in cases where the Empty Pack Surveys were considered insufficiently representative or where they would be unlikely to fully capture a key element of Illicit Consumption such as Domestic Illicit or illicit loose tobacco volumes (RYO). In these markets, Empty Pack Survey estimates were combined with other estimates to produce a “hybrid” estimate of Illicit Consumption.

(Source: *The Asia Illicit Tobacco Indicator 2017: Methodological Overview*, Page 16)

• **Vastly different results across rounds of EPS in the same country/year**

Given that the EPS has multiple waves of data collection throughout the year with very different results (Image 2), a reader is left wondering how these large differences in the span of less than one year were reconciled and which estimate was selected as an input to the model. If these estimates were presented with confidence intervals, one could assess if the difference between estimates was indeed statistically significant.

• **Unexplained need to “adjust” official sales data**

The OE adjusts not only the EPS data, but also other data. In the case of Indonesia, it “adjusted” the sales data based on an unpublished report with no information on the methodology employed in that report. In the Philippines, the official sales data considered by the research community as highly accurate⁸ were “adjusted” using PMI data with no consideration for the implication of such an adjustment on the results.

• **Incorrect methodology to calculate the tax loss leads to an upward bias**

The tax loss is not calculated correctly, since it assumes that if the illicit market disappears, there would be no impact on consumption and all the illegal cigarettes would be replaced by legal ones. This assumption would hold only in countries where the illegal cigarettes are more expensive compared to the legal cigarettes. The report does not provide information on the price of the legal/illegal products, but it implies that illicit cigarettes are cheaper. In that case, replacing illicit with legal consumption would result in an overall reduction in consumption. In addition, the legal duty-free packs from the Philippines pay excise tax⁹. This tax income is also not considered by the report. Therefore, the tax loss presented in this report is systematically biased upwards; it is over-estimated.

“...the tax loss presented in this report is systematically biased upwards; it is over-estimated.”

• **OE fails to cross-verify the results in breach of its TOR**

The OE TOR calls for cross-checking the results with alternative data sources and studies. This has not been done, even though alternative estimates exist for numerous countries presented in the study. For example, academic institutions published estimates for Hong Kong, Indonesia, Malaysia, Vietnam, New Zealand, etc.

• **Glossary is incorrect and/or inconsistent**

The Glossary implies that contraband is a good that only moves from a low-tax market to a higher-priced market. That is incorrect, as there are many examples where this definition does not apply. For example, in Vietnam the two brands that dominate the illicit market (Jet and Hero) are produced in Indonesia (a country with a tax rate higher than Vietnam¹⁰), and then sold in Vietnam (a country with prices lower than in Indonesia¹¹) for prices higher than the average legal brands.¹²

Also, this definition incorrectly mixes tax with price. Price reflects the decision of a tobacco company, and this decision often signals that the companies are not worried about the price differences between countries when they “over-shift the tax”, i.e. increase their prices in excess of a tax increase.

The definition of Domestic Illicit Cigarettes incorrectly excludes counterfeits, and the definition of the EPS implies that all packs are discarded by only smokers, while in reality they can also be discarded by retailers of single sticks, for example. One also wonders why the term “Illicit Whites” is defined in the Glossary, but it never appears anywhere in the report. Is this a “left-over” from a publication intended for a different market/audience, such as Europe, for example?

• **Methods comparison is incomplete**

The methodological comparison with other studies at the end of the Methodological Overview is very sloppy. For example, only some methods are judged on costs, while the EPS is labeled as “cost-effective” without providing any evidence. This section provides no information about the methodology used to identify the domestic illegal consumption in Indonesia, even though the report heavily relied on that unpublished study. As a side note, the Indonesian study estimates the share of illegal products in the Indonesian market at 7% in 2017¹³, while the OE report provides an estimate of 9.7%.

“Even though the report acknowledges that it has some weaknesses...the impact of these shortcomings on the final results is not assessed or discussed.”

• **Impact of methodological weaknesses is not assessed**

Even though the report acknowledges that it has some weaknesses (e.g. underestimating the outflow of cigarettes from a specific market; failure to identify all counterfeit cigarettes; non-representativeness of the EPS; the weakness of a telephone survey), the impact of these shortcomings on the final results is not assessed or discussed.

• **Mistakes**

The report exhibits numerous mistakes. For example, on page 9, the report claims that it contained estimates for 17 markets. However, there are only 16 markets covered by the report. The EPS data collected in 2011 are sometimes presented as 2012 data.

“A firm that claimed to be “a leader in global forecasting and quantitative analysis”¹⁴ should certainly understand the difference between sales and production.”

The model presented on page 34 of the Methodological Overview uses the term “production”. This is the first time such term has been used in the entire report to represent sales. A firm that claimed to be “a leader in global forecasting and quantitative analysis”¹⁴ should certainly understand the difference between sales and production.

Even the information about the tax structure on pages 38 – 41 of the Methodological Overview is incorrect. For example, the tax in Laos was 30% of retail price in 2017, not 60% of ex-factory price.¹⁵ The information on the tax structure in Thailand is also flawed, because Thailand had a two-tiered system in 2017. Additionally, Laos does not earmark its tax stamps.

Presentation of the Results

Despite both the disclosed and the hidden shortcomings of the data and the methodology, the results are being presented with no reservations.

“The absence of confidence intervals in the entire report is simply shocking.”

• *Confidence intervals not reported*

The absence of confidence intervals in the entire report is simply shocking. No serious researcher presents estimates without the possible range (indicating precision) and a level of confidence (measure of statistical stability) of these estimates. The results of the EPSs hint at the lack of such stability when they report hugely different estimates across rounds of EPS in the same country per year.

• *Confusions about the terminology*

The OE TOR calls for estimating illicit consumption “in terms of volume, incidence, and penetration.” These very specific scientific terms are used incorrectly within the report. What OE calls “incidence” in the report is actually “penetration” – i.e. the market share of illegal products. Incidence refers to the number of new cases occurring within a specific time and specific population and is primarily used in epidemiology, not in market research. With a stretch of imagination, one can loosely translate incidence as reporting a change in volume of illicit trade.

• *Misleading graphs disguise findings*

This change in the illicit trade volume is supposedly presented on page 14 of the report where a graph claims to compare the 2016 and 2017 estimates. A quick glance at the graph gives the impression that the volume of illegal cigarettes in the region increased. In fact, the graph shows % changes in volumes by countries rather than the actual volumes. For example, this graph shows >100% change in illicit volumes in Thailand and Cambodia; yet on page 13 the report states that more than 76% of all illicit cigarettes were consumed in three markets: Pakistan, Indonesia, and Vietnam. Such presentation disguises the market sizes of these countries, and therefore the fact that the total volume of illicit consumption in fact declined from 131.2 bn sticks in 2016¹⁶ to 115.9 bn sticks in 2017, or by 11.7%.

“Such presentation disguises the market sizes of these countries, and therefore the fact that the total volume of illicit consumption in fact declined...”

• *Selective omission of facts unfavorable to the report conclusions*

“4 out of 5 countries in which the % volume of illegal cigarettes went down (Australia, Indonesia, the Philippines, and Pakistan) increased their tobacco excise tax in 2017.”

Interestingly, 4 out of 5 countries in which the % volume of illegal cigarettes went down (Australia, Indonesia, the Philippines, and Pakistan) increased their tobacco excise tax in 2017.

• Biased presentation of the results

The report points out that the share of illicit markets in 12 out of 16 countries increased. Even if this were a correct estimate, it does not mean that the volume of illicit products in these 12 countries increased. It could just simply mean that total consumption declined faster than illicit consumption.¹⁷ For example, in Australia, total illicit consumption is reported to have increased from 13.5% to 13.7%, while the total consumption actually fell from 21.6 billion to 19.7 billion cigarettes. Similar dynamics can be observed in Hong Kong, Myanmar, South Korea and Taiwan.

“The report fails to highlight that 98.45% of the illicit market consists of products manufactured by legitimate tobacco companies that fail to control their supply chain.”

According to the report, the volume of illicit cigarettes in percentage terms increased in 11 countries. Many of these increases appear small, and if the confidence intervals were provided, the number of countries with higher illicit cigarette trade volumes would likely drop. At the same time, it is important to keep in mind that the data quality and the various adjustments made to those data are questionable and undisclosed, respectively.

Since all types of illicit cigarettes are mixed together when presenting the main results, only a careful reader discovers that counterfeit cigarettes represent a mere 1.55% of the illicit market. The report fails to highlight that 98.45% of the illicit market consists of products manufactured by legitimate tobacco companies that fail to control their supply chain.

• Prosecuting the tobacco industry results in illicit cigarette market decline

The sharpest decline in the volume of illicit consumption occurred in the Philippines, a country that increased its cigarette excise tax rates and simplified its tax structure from four tiers in 2012 to one tier in 2017. This success is attributed to the indictment of the local tobacco company for fraud. Clearly, enforcing tax laws and prosecuting the tobacco industry works better than holding off tax increases and tax reforms. This message, though implicit, is nowhere to be found in this report.

“Clearly, enforcing tax laws and prosecuting the tobacco industry works better than holding off tax increases and tax reforms.”

• Tax loss presentation is misleading

The tax loss is presented in absolute figures. These figures are less driven by the share of the illicit market, and more by the tax rate and the overall size of the market. Therefore, the tax loss should be presented as the percentage of overall tax revenue to put these figures into perspective, something this report failed to do, possibly deliberately, because it would show how insignificant these tax losses are compared to the size of the economies and overall tax receipts.

In addition, changes in the tax loss over time are not adjusted for inflation, thus presenting a distorted picture of the true change in real figures.

• Results are being heavily promoted

The OE's TOR specifies that individual reports be produced for 13 of the 16 markets. Presumably, these individual reports are intended for use in their respective jurisdictions.

Custom-made estimates generated specifically for Malaysia by the OE on behalf of the largest market shareholder BAT were launched in June 2019.¹⁸ Representatives of the International Monetary Fund, the United States Internal Revenue Service, Transparency International Malaysia, the Malaysian Industrial Development Finance group, and OE were the panelists at the event.¹⁹ Subsequently, these panelists, representatives of BAT, and other industry supporters promoted the results of the report in the media over the next 6 months.^{20,21,22,23,24,25,26,27,28} The report was mostly visible around the time of its launch and when the budget for the next year was discussed in Parliament in October 2019. In the end, the Parliament did not approve a tax increase for tobacco products for 2020. The last tax increase for tobacco products was in 2015.

In Indonesia, the Customs and Excise Directorate of the Ministry of Finance utilized the research conducted by the Economics and Business Research and Development Agency (EBReDA) Faculty of Economics and Business, University of Gadjah Mada in 2017²⁹ and 2019.³⁰ There has been a long-standing collaboration between OE and EBReDA. Research on illicit cigarette trade by Satriawan et al from EBReDA is used as a key input into the OE's estimates for Indonesia;^{31,32} without disclosing the nature of the relationship and the funding source.

In 2018, the Vietnam Tobacco Association utilized the OE report to oppose tobacco tax increases, pointing to the OE report results regarding the size of the illicit cigarette market in Vietnam, the associated tax losses and harm imposed on the legitimate business.³³

The leading business paper in the Philippines also disseminated the OE report results.³⁴

Discussion

To summarize the main flaws of the report and the methodology, we have subjected the report to a set of criteria co-published by two academic institutions assessing the quality of illicit trade estimates (Table 1). It is very clear that this report is of poor quality and that its results are simply unreliable. The arbitrary data adjustment of undisclosed scale/direction means that the replication of these results is simply impossible. In addition, many graphs appear to convey an inaccurate message at first glance. Therefore, the report can easily leave busy policy makers with a mistaken impression about the figures.

"...this report is of poor quality and...its results are simply unreliable."

Table 1: The Asia Illicit Tobacco Indicator 2017 report fails most criteria for assessing the quality of illicit trade estimates*

Criteria	Criteria for good quality studies
1. Peer reviewed	X
2. Funding	✓ / X
3. Grounded in theory	X
4. Transparency and replicability	X
5. Generalizability of results	X
6. Objective criteria preferred over subjective criteria	X
7. Measurements are defined correctly	cannot be determined
8. Identification of counterfeit products	X
9. Presentation of results	✓ / X
10. Cross-validates a point estimate using multiple methods or measures change over time using the same method	X
11. Acknowledgement of methodological weaknesses	X

**Please refer to the Appendix for more details.*

OE claims “academic freedom and full editorial control”, yet it prepares the report in accordance with specific terms of reference (TOR) agreed between PMI and OE. Can we trust that the TOR published at the end the Methodological Overview is the actual and complete TOR, given the history of PMI’s misuse of science? Why are the other TORs for data collection undisclosed, and why is PMI in charge of the sampling plan, sample size, and the geographical selection of these surveys?

A reader is left to wonder if the separation of the roles of data collector and data analyst was deliberate on the part of PMI. Is this a way to protect the data collectors, the data analysts, and the funder from any possible liability related to disseminating incorrect results?

The common denominator to all pieces of this study is PMI and its TORs with all of the multiple parties in the report’s chain of production. This is a way for PMI to control the final results--by controlling the input, the data analysis, as well as publication, distribution, and promotion.

“This is a way for PMI to control the final results--by controlling the input, the data analysis, as well as publication, distribution, and promotion.”

The report lacks a critical review of the obtained results. If this was done, one would need to point out that the overwhelming majority of illicit products are brands of legitimate tobacco companies that fail to control product entry into its supply chain. Contraband cigarettes with a specified market variant (i.e. packs with a known and identifiable destination that were diverted to an alternative market) account for 11.6% of all illegal cigarettes. Just correcting for this very obvious leakage from the supply chain would mean that the illicit cigarette market would almost disappear from Macao, Myanmar, New Zealand, Singapore and South Korea.

OE reports that it “sought to corroborate our estimates of illicit consumption where possible by reference to other estimates.” It is unclear if such an attempt was done, but in any case, none of it was reported.

Funding OE is not the only channel for the tobacco industry to influence policy making related to the tobacco control. SEATCA has discovered that the tobacco industry funds similar research on illicit trade and other topics all

“SEATCA has discovered that the tobacco industry funds similar research on illicit trade and other topics all over Asia.”

over Asia. For example, a prominent Malaysian think tank, Institute for Democracy and Economic Affairs (IDEAS) received research funding from PMI and Japan Tobacco International (JTI) between 2015-2018. During this period, IDEAS came out challenging a range of tobacco control issues including tax increase, plain packaging, and licensing of retailers.³⁵ In 2018, IDEAS also published a report on illicit trade.³⁶

Recommendations

1. This tobacco industry-funded study must be rejected not only because it contravenes the terms of WHO FCTC Article 5.3, but also because it is methodologically flawed.
2. Oxford Economics has been collaborating with the tobacco industry on this series of illicit trade studies for close to a decade. It provides a voice to the tobacco industry that governments should ignore because it is not objective and impartial. In other words, it is not science.
3. Governments should consider protecting tobacco tax policy from the vested interests of the tobacco industry by taking into account the recommendations from the WHO FCTC Article 6 Guidelines on how to tax tobacco products, particularly the measures to protect the tobacco tax policy from the commercial and vested interests of the tobacco industry.
4. Governments should consider ratifying the WHO FCTC Protocol to Eliminate Illicit Trade in Tobacco Products, which will facilitate collaboration with other governments in other regions and widen access to technical assistance.
5. Governments should require tobacco companies to declare all research and marketing funding to entities subject to their governmental jurisdiction.
6. In order to obtain illicit trade estimates for each country, governments should seek advice and/or commission research studies from transparent and accountable research institutions that have no links to the tobacco industry. SEATCA can provide a list of such institutions on request.

About the Author

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Dr. Ross earned her B.A. and M.A. at the Prague School of Economics and her Ph.D. in Economics at the University of Illinois at Chicago. She has over 20 years' experience in conducting research on the economics of tobacco control and in management of research projects in low- and middle-income countries, including projects funded by the World Bank, World Health Organization, Rockefeller Foundation, Open Society Institute, Robert Wood Johnson Foundation, European Commission, Bloomberg Global Initiative, and Bill & Melinda Gates Foundation. She has more than 60 published articles and independent reports on tobacco taxation, cigarette prices, illicit cigarette trade, costs of smoking, youth access to tobacco products, and other economic aspects of tobacco control. She co-authored the 3rd and 4th editions of the Tobacco Atlas and developed a global course for economists to engage in research on the economics of tobacco control.

Dr. Ross's expertise on issues related to illicit tobacco trade includes measuring the size of tax avoidance/evasion and strategies to control the size of the illegal cigarette market. She is a member of the Panel of Experts on the WHO Framework Convention on Tobacco Control (FCTC) Protocol to Eliminate Illicit Trade in Tobacco Products.

Dr. Ross currently supports several research capacity building projects in Africa and Asia and consults with governments and NGOs in numerous countries. Her current research focuses on the economic impact of tobacco control interventions in Africa, Southeast Asia, and in the European Union. She is also interested in the economics of drug abuse and the economic impact of other risk factors associated with non-communicable diseases such as obesity, lack of physical activity, and alcohol consumption.

Appendix

Criteria for assessing the quality of estimates (Highlighted text refers to characteristics of the Asia Illicit Tobacco Indicator 2017 report.)

Criteria	Characteristics of studies that meet the criteria for good quality	Characteristics of studies that do NOT meet the criteria for good quality
1. Peer reviewed	Published in a peer-reviewed journal; and/or explicitly refers to a peer-review process; and/or it is an official document of a reputable international or government organization.	No reference to a peer-review process.
2. Funding	Funding acknowledged. Funding entity has no potential conflict of interest with respect to the subject of the study.	Funding not disclosed or acknowledged. Funding entity has a potential conflict of interest with respect to the subject of the study.
3. Grounded in theory	Study distinguishes between various types of tax avoidance/evasion, and clarifies which types are the subject of the study. Takes into account any relevant factors that could influence the scope of tax avoidance/evasion.	Study doesn't distinguish between tax avoidance and tax evasion; it is not clear which type of avoidance/evasion is being measured. Fails to account for factors that could influence the scope of tax avoidance/evasion.
4. Transparency and replicability	Methods and data are adequately described so that the results can be replicated if desired; data is publicly available or can be made available upon request. Assumptions made are clearly stated.	Methods and data are not adequately described; the results cannot be replicated using the information provided in the study; data is not publicly available. Assumptions made are not stated or stated clearly.
5. Generalizability of results	Sample size and sampling design are well described and allow for generalization of results to the entire country/region/population. The sample is selected objectively. Sample attrition and non-response is described and appropriate statistical methods are employed to correct for this; there is an attempt to establish the representativeness of the sample.	Sample size and sampling design are not adequately described; sample size is too small to allow for generalization of results. The sample selection is biased. Sample suffers from large attrition and/or high non-response rate and there is no attempt to correct for this or to establish the representativeness of the sample.
6. Objective criteria preferred over subjective criteria	Low-tax purchases are identified based on a set of objective criteria such as place of purchase, product price, etc. Self-reported low-tax purchases are cross-verified using objective criteria	Low-tax purchases are identified by respondents' self-report. E.g. New Zealand There is no attempt to cross-verify the self-reported information using objective criteria. E.g. New Zealand

continued

Criteria	Characteristics of studies that meet the criteria for good quality	Characteristics of studies that do NOT meet the criteria for good quality
7. Measurements are defined correctly	Survey questionnaire distinguishes between different tax avoidance/evasion categories.	Survey questionnaire doesn't clearly distinguish between different tax avoidance/evasion categories; categories may overlap and the same event might be counted multiple times.
	Conversion of cigarette sticks to/from weight measure is transparent and based on a well-established conversion factor.	Conversion of cigarette sticks to/from weight measure is not transparent or is not justified.
8. Identification of counterfeit products	Identification of counterfeit products is performed by an independent researcher or lab.	Identification of counterfeit products is performed by a party with a vested interest in the results.
9. Presentation of results	Estimates are presented as a range or with confidence intervals that account for the statistical properties of the sample and/or various assumptions used in generating the estimate.	Results are not presented as a range or with confidence intervals. Results are not robust with respect to assumptions made.
	The size of the illicit market is expressed as a share of the total market.	The size of the illicit market is expressed as a share of the licit market. This makes the problem look bigger.
10. Cross-validates a point estimate using multiple methods or measures change over time using the same method	Uses multiple methods and/or corroborating information to cross-verify the estimates	Estimates the scope of tax avoidance/evasion at one point in time without using multiple methods to cross-verify the results.
	Estimates changes in tax avoidance/evasion over time using the same method.	Corroborating evidence used to cross-verify results cannot be trusted based on criteria presented in this table.
11. Acknowledgement of methodological weaknesses	Points to possible weaknesses of the applied methodology/data and assesses the implication of these shortcomings for the estimates.	Weakness of the applied methodology/data are not acknowledged/discussed.

Source: Ross, H. (2015) ³⁷

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Published by:

Southeast Asia Tobacco Control Alliance

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Dusit, Bangkok 10300 Thailand

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