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Measuring Illicit Cigarette Trade: The Case of the Philippines

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Measuring Illicit Cigarette Trade: The Case of the Philippines

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Abstract

Illicit cigarette trade, or the manufacture, distribution and sale of cigarettes that evade taxes and violate trademarks, persists in the Philippines. Using the residual methods, this study estimated the size of illicit cigarette trade in the country covering the period 2009-2017 and the corresponding tax revenue lost. The estimates show that illicit trade has flourished after the increase in excise tax; thus, undermining the effectiveness of the series of tax policy reforms meant to lower, if not eliminate, tobacco use in the country. The magnitude ranges from 3.3% to 42.8% of total cigarette consumption, depending on the threshold of under-reporting used. In 2017 alone, tax revenue lost ranges from a low Ph11.96 billion to a high of Ph40.0 billion using the under-reporting threshold of 10 percent and 40 percent, respectively. However, illicit cigarette trade due to smuggling has decreased over the years. This implies that the source of illicit trade has shifted to domestic origin, or one that is sourced from within the country. The study recommends that the increase in illicit trade should not be an excuse not to increase the excise tax on cigarettes. Instead, the tax policy reforms should be accompanied by strengthening tax administration and strict enforcement of government measures to combat illicit cigarette trade.

Key words: cigarette, illicit trade, tax revenue loss

Measuring Illicit Cigarette Trade: The Case of the Philippines

Myrna S. Austria and Alyssa Cyrielle B. Villanueva¹

I. Introduction

The Philippines is one of the largest tobacco consuming countries in the Western Pacific region (International Agency for Research on Cancer [IARC], 2011). Despite the decrease in smoking prevalence over the period 2009–2015, the percentage of the adult population who smoked tobacco products remains high.² The health and economic costs of tobacco use are well known. These include the health care expenses for treatment of diseases caused by tobacco (such as tuberculosis, lung cancer, cardiovascular diseases, etc.) and the loss in productivity due to tobacco-related diseases and premature deaths (Quimbo et al., 2012; IARC, 2011). Thus, the goal of the government is to reduce tobacco use.

As a signatory to the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), the Philippine government has implemented tobacco control measures to reduce, if not eliminate, smoking and other forms of tobacco use. These include the increase in excise tax on tobacco products, ban of smoking in public and workplaces, ban in tobacco advertising and sponsorship of public events by tobacco companies, regulation on packaging and labeling of tobacco products, and health warnings, including graphic images, among others.

However, according to WHO (2015), the increase in excise tax is the most effective and cost-effective measure to lower tobacco use. By increasing the price, taxes lower the demand for tobacco products. In the Philippines, cigarette tax comes in the form of an excise tax and has been the subject of major tax policy reforms in recent years. It started with the Sin Tax Reform Act (2012) under the Aquino Administration. The law significantly increased the specific excise tax on tobacco, simplified the tax structure from a multi-tiered classification to a unitary tax system effective 2017, removed the price classification freeze, and indexed the tax rates to address inflation. Based on the study by Austria and Pagaduan (2019), the tax reform was effective in lowering cigarette consumption in the country and in making cigarette demand more responsive to price increases. In 2016, another increase in excise tax was implemented under the Tax Reform for Acceleration and Inclusion (TRAIN) Law (2017) by the Duterte Administration. The tax went up from P30 per pack in 2017 to P32.5 and P35 in 2018 and 2019, respectively. The most recent increase was under Tobacco Tax Law 2019, which was signed into law in July 2019. The tax reform increased the excise tax to P45 in 2020, with a P5 peso increase every year until it reaches P60 in 2023. Starting in 2024, a 5% annual indexation will be applied.

Despite the recent increases in tobacco excise tax, challenges continue to remain. The illicit tobacco trade, or the manufacture and sale of cigarettes that evade taxes, continues. This is best exemplified by the recent case of Mighty Corporation, a legitimate and large manufacturer and seller

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² Based on the 2009 Global Adult Tobacco Survey (GATS), 28.3 percent of adults ages 15 and above in the country smoked tobacco while 27 percent smoked manufactured cigarettes. Based on the 2010 GATS, the percentage went down to 23.8% and 21.5%, respectively.

of tobacco products. In 2017, the company was caught by the government for manufacturing and distributing cigarettes with fake cigarette stamps and for other tax-related violations and for which it paid the government PhP30.4 billion in settlement for its tax liabilities (Padin, 2019).³

The illicit tobacco trade is commonly used by the tobacco industry worldwide as a campaign against tobacco tax increases. The tax increase is said to enforce illicit trade as smokers look for cheaper substitutes. However, according to the recent World Bank report (Duta, 2019, p. xiv), the "evidence indicates the illicit cigarette market is relatively larger in countries with low taxes and prices while relatively smaller in countries with higher cigarette taxes and prices." According to the report, non-price factors are considered more important determinants of illicit trade. These include weak governance, weak regulatory framework, and the availability of informal distribution networks.

What is the magnitude of the illicit tobacco trade in the Philippines? How much is tax revenue lost due to the illegal trade? These are important policy questions this study would like to address, primarily because the illicit tobacco trade undermines the effectiveness of the government's control and prevention measures against tobacco use, as will be discussed in the succeeding sections. Hence, measuring the size of the illicit tobacco trade in the country would be a good start to address the problem. The study aims to: (a) measure the size of illicit trade in the country; (b) estimate the tax revenue loss due to illicit trade; and (c) recommend policies that will help combat illicit trade. The findings and recommendations of the study will help the government in future tax policy reforms and in improving anti-illicit trade tobacco measures.

The paper is structured as follows: Section II discusses the regulatory environment to control the illicit tobacco trade in the Philippines. Section III reviews the literature on measuring illicit cigarette trade in various countries. Section IV presents the data, methodology, and limitations of the study. Section V discusses the results and findings. The last section (Section VI) concludes and offers policy recommendations.

II. The Regulatory Environment: Controlling Illicit Tobacco Trade in the Philippines

What is Illicit Tobacco Trade?

Article 1 of the Protocol to Eliminate Illicit Trade in Tobacco Products (WHO, 2013) defined illicit tobacco trade as "any practice or conduct prohibited by law and which relates to production, shipment, receipt, possession, distribution, sale or purchase including any practice or conduct intended to facilitate such activity" (p. 6). Illicit trade could take the following schemes where excise taxes and tariffs are avoided and trademarks are violated: (a) *illicit manufacturing* where tobacco products are produced contrary to applicable laws and regulations; (b) *counterfeit production* is a form of illicit manufacturing where tobacco products bear trademarks of legitimate brands without the consent of the trademark owners; (c) *smuggling* where tobacco products are illegally traded between countries primarily to avoid paying the duties and other taxes. Large scale smuggling is typically run by organized crime syndicates; and, (d) *bootlegging* where individuals purchase cigarettes in large quantities from states/jurisdictions or countries where taxes are low,

³ During the period of investigation, the cigarette business of Mighty Corporation was acquired by Japan Tobacco International (JTI).

either for sale or consumption in states/jurisdiction or countries where taxes are high. Because the excise tax and tariffs on tobacco products are uniform across all provinces/regions and ports in the Philippines, bootlegging in the country could only happen from foreigners visiting the country or Filipinos traveling to other countries.

The illicit cigarette trade undermines the government's prevention and control measures against the use of tobacco products. Foremost is that it weakens the effects of the tax reforms on tobacco consumption as it enhances the affordability and availability of cigarettes. The price of illicit tobacco products is usually lower than the retail market price and thus, makes tobacco products more affordable, particularly for price-sensitive smokers, like the youth and the poor. Likewise, illicit tobacco products are usually distributed and sold via unregulated channels, like small retailers or online sales, and thus, increases their availability. The increased availability of low-priced tobacco products encourages smokers who may otherwise quit smoking with an increase in excise tax to continue smoking.

Another effect of illicit trade is the loss in government revenues as taxes that would otherwise be paid to the government are avoided or evaded. From a public health perspective, it undermines health warnings because illegal tobacco markets do not comply with local laws.

Controlling Illicit Tobacco Trade in the Philippines

As a signatory to the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), the government has been implementing measures to control the illicit tobacco trade in the country. These measures are consistent with the Protocol to Eliminate Trade in Tobacco Products of the FCTC. Among the government agencies, the Bureau of Customs (BOC) and the Bureau of Internal Revenue (BIR) are at the forefront in implementing these measures.⁴

Payment of excise tax. As a general rule, local manufacturers of cigarettes are required to pay the excise tax prior to the removal of the cigarettes from the place of production, regardless of whether the cigarettes are intended for domestic sale, exports, or sale to tax-exempt entities (RR 3-2008). If the cigarettes are for exports or sale to tax-exempt entities, the manufacturer may claim tax credits or refund later. This is meant to tighten control and prevent the diversion of cigarettes declared for exports to the local market as well as the domestic sale of cigarettes intended for tax-exempt entities to entities that are not entitled to the exemption. If the cigarettes are later found in the domestic market, the manufacturers are subsequently penalized. Furthermore, cigarettes intended for exports are subject to export bond (equivalent to the amount of excise tax due if sold domestically) prior to removal from the place of manufacture. Also, a transfer bond must be paid if cigarettes for exports are transferred from the production place to a bonded facility prior to export.

Imported cigarettes are also subject to the excise tax, including those intended for tax and duty-free shops, Duty Free Philippines, and economic/freeport zones (RR 17-2012). Furthermore, imported cigarettes that are meant for transshipment to other countries are subject to a bond

⁴ We conducted separate interviews with some BIR and BOC administrators to gather expert information on illicit tobacco trade in the Philippines. The interviews were useful in understanding some of the current measures the government is implementing to control illicit tobacco trade and to ensure that tobacco-producing firms and importers pay the correct amount of taxes.

(equivalent to the amount of customs duty, excise tax, and VAT if sold domestically) prior to entry. Again, this is to tighten control to ensure that the cigarettes do not find their way into the domestic market.

Affixture of internal revenue tax stamps. Imported and locally manufactured cigarettes, whether for domestic sale or for exports, are affixed with internal revenue tax stamps beginning November 2014⁵ (RR 7-2014 as amended by RR 8-2014, RR 9-2014, and RR 9-2015). To ensure authenticity, the ordering and distribution of the stamps are done through the Internal Revenue Stamp Integrated System (IRSIS). Approval of the orders is done by the BIR but only after the importer or local manufacturer has paid the excise tax through the Electronic Filing and Payment System (eFPS) of the BIR (RR7-2014).⁶ The system implies that importers and local manufacturers have to be enrolled with the IRSIS and eFPS.

The authenticity of the tax stamps can be validated through the mobile application Stamp Verifier App (RMC 51-2016). With a mobile device (like smartphones or tablets), the BIR and the public can verify the security features of the stamp. Cigarettes found with invalid or wrong security codes are considered smuggled or counterfeit. To further tighten the control, the security features of the stamps are changed every three years. The latest internal revenue stamps became effective January 1, 2018, for locally manufactured cigarettes and June 1, 2018, for imported cigarettes (RR 7-2017).

Cigarettes found without the tax stamps or with the wrong security codes are confiscated and subject to penalties. Thus, the affixture of tax stamps serves as a measure to distinguish the licit from illicit cigarettes. The entire system, from the ordering of the stamps to excise tax payment, also ensures that the correct excise tax is paid before the cigarettes are removed from the production or importation sites.

Sworn statement by manufacturers and importers. Local tobacco manufacturers and importers are required to submit a sworn statement as a supporting document for the initial registration of the tobacco products (RR 17-2012). An updated sworn statement shall be submitted on or before the end of June and December of the year. The statement includes, among other information, (a) the name, address, and TIN of the manufacturer or importer; (b) cigarette brand, including the specifications such as measurements and manner of packaging; (c) places where the cigarettes are to be marketed; (d) wholesale price, gross and net of VAT, and excise tax; (e) suggested retail price (SRP); and (f) detailed cost of production or importation.

Cigarette brands that are not included in the sworn statement provided by the manufacturer or importer are considered illicit. Furthermore, the permit to manufacture or permit to import will be canceled in case of misrepresentation or inaccurate information in the sworn statement.

⁵ Internal revenue stamp refers to the “BIR-issued stamp with a dimensional size of 23 millimeters (mm) by 43 mm containing multi-layered security features and an IRSIS-assigned Unique Identifier Code and a Quick Reference Code containing information pertinent only to the cigarette container (e.g., pack) to which the internal revenue stamp is affixed” (Revenue Regulation No. 7-2014).

⁶ IRSIS refers to the “web-based application system for ordering and distribution of internal revenue stamps, as well as, for real-time monitoring of the said stamps upon its affixture on the cigarette products, and for generating the required reports” (Revenue Regulation No. 7-2014).

Tobacco products considered as regulated imports. Tobacco products are considered as regulated imports by the Bureau of Customs. Rules and regulations concerning the importation of tobacco products require strict enforcement (CMO 9-2015). One of the regulations requires the submission of import permits to the BOC when filing for imports. These permits include the following: (a) Import Commodity Clearance from the National Tobacco Administration (NTA); and (b) Authority to Release Imported Goods (ATRIG) from the BIR. Assessment of imports will only be done by the BOC if the required import permits have been submitted to the BOC.

Requirements for the release of tobacco imports. Tobacco imports can only be released by the BOC upon submission by the importer of the Authority to Release Imported Goods (ATRIG) (RMO 35-2002). This is a BIR requirement for the release of all imports subject to an excise tax. ATRIG was replaced by the electronic system "eATRIG" under the Philippine National Single Window (PNSW) System (RMO 14-2014). Although the application of eATRIG is made online through the NSW, the importer is required to submit a hard copy of the duly notarized application form to the Excise Large Tax Regulatory Division (ELTRD) of the BIR. The application will only be processed if the importer is a duly registered taxpayer with the BIR.

Profiling and monitoring of importers. Importers are required to be accredited with the BOC (CMO 4-2014). The Account Management Office of the BOC is responsible for managing and maintaining the information database of the importers as well as monitoring their importing activities. The database enables the BOC to identify importers qualified for the Super Green Lane (SGL) program based on their risk profiles. Under SGL, customs clearance and administrative processes are simplified (CMO 02-2000; CMO 28-2003; CAO 4-2011). Importers considered as high risk are subject to stricter standards for the processing of imports.

III. Measuring Illicit Tobacco Trade: A Review of Existing Studies

Measuring illicit tobacco trade is methodologically challenging. Because of the illegal nature of the trade, there is hardly any trace (or none at all) of the activities of those involved. Thus, it is difficult to know the exact magnitude of the value of the trade. Attempts to measure the magnitude are classified in the literature in three broad categories depending on the data and information used. These are residual methods, direct measurements, and experts' opinions. This section discusses each category, including their limitations.

Residual Methods

Among the three categories, the residual methods are most widely used by existing studies. They include three approaches, namely: (a) comparison of tax-paid sales to survey data of self-reported reported consumption; (b) comparison of tax-paid sales to results of econometric modeling that estimates total consumption after accounting for factors that affect demand for tobacco products; and (c) trade gap analyses (IARC, 2011; Chaloupka et al. (n.d.); National Research Council [NCR], 2015). These methods aim to identify discrepancies in different datasets to capture both formal and informal activities in the cigarette market. Measuring the illicit market can be done by comparing the total amount spent by the country's citizens (with the assumption that it captures all market activities) to the total amount earned by the government (with the assumption that it includes all earnings in the formal sector). However, these methods are indirect as there may be other reasons for different

datasets to have discrepancies, and researchers have to make certain assumptions about unknown factors to yield estimates of the size of the illicit market (National Research Council [NRC], 2015).

The first approach is a comparison between survey-based estimates of cigarette consumption and legal cigarette sales. Comparing tax-paid reported sales and self-reported cigarette consumption based on population surveys can find the levels of tax avoidance and tax evasion. Illicit trade is considered to occur if consumption is greater than legal sales. This approach measures the net magnitude of illicit trade in a country as it does not differentiate the forms of illicit trade originating either within or outside the country. Likewise, estimates of cigarette consumption based on surveys could be underestimated due to respondents' faulty recollection or simply under-reporting in countries or areas where smoking carries a social stigma. The rates range from 22% to 31% in the United States during the period 1974 and 1985, from 28% to 30% in New Zealand between 1976 and 1981, and from 25% to 35% in Italy during the period 2001 and 2008 (Hatziandreu et al., 1989; Jackson & Beaglehole, 1985; Gallus et al., 2011). Moreover, population surveys may exclude certain segments of the population, such as institutionalized populations and the military, and may also fail to account for random statistical variation.

Several studies used the above approach to measure illicit trade. A study in the United Kingdom found that 18% of total cigarette consumption in the country was illicit (NRC, 2015). The study in Indonesia by Ahsan et al. (2014) showed that illicit cigarette consumption ranges from -7% to 17% of total consumption from 2004 to 2013 if no respondent under-reporting is assumed to exist. However, illicit consumption consistently increased during the period in any of the under-reporting thresholds used (10%, 20%, and 30%). The study in Vietnam by Nguyen et al. (2014) covering the period 1998–2010 showed illicit trade in 1998, 2002, and 2006, with respondents under-reporting between 10% and 30%. On the other hand, the study in Brazil by Szklo et al. (2018), covering the period 2012–2016, showed that there was a 3.7% increase in the estimated proportion of illicit cigarette use from 2012 to 2013, a decrease of 3.5% from 2013 to 2014, and then a persistent 14% increase from 2014 to 2016. In South Africa, Vellios et al. (2019) estimated that illicit trade in the country had increased sharply since 2009. Total illicit cigarette trade peaked around 30% to 35% in 2017. Furthermore, the acceleration in the illicit market growth in 2015 was attributed to the reduced enforcement functions by the South African Revenue Service.

However, the numbers derived using the method above often reflect some biases. According to Merriman (2001), the tax-paid sales do not actually account for consumption but rather for shipments at the factory or wholesale level and not the actual consumption. Most surveys only ask general questions about respondents' cigarette use but not specific questions that are useful to estimate the prevalence of illicit activity, such as the location and price of their last purchase. The underreporting issue mentioned earlier is an additional constraint in measuring the size of the illicit market. Hence, adjustments to underreporting behavior should also be made to avoid underestimating the scale of illicit activities.

The second approach compares changes in tax-paid cigarette consumption with predicted changes in total cigarette consumption. Illicit cigarette trade exists if the growth of tax-paid cigarette consumption differs (deviates) from the growth of predicted cigarette consumption (Van Walbeek, 2014). Therefore, crucial to this approach are the estimates of predicted cigarette consumption. The literature on cigarette demand shows that the demand for cigarettes is primarily determined by cigarette prices and income (Austria & Pagaduan, 2019). Thus, this approach requires information

on price and income elasticities for the demand for cigarettes. Furthermore, as estimates of total cigarette consumption would include both legal and illicit cigarettes, estimates of illicit trade under this approach cannot distinguish the forms of illicit trade occurring in a country. Van Walbeek (2014) estimated the illicit cigarette trade in South Africa covering the period 1995 to 2013. The findings show no evidence of an increase in illicit trade until 2010, except 2002–2009. Illicit trade registered a sharp increase in 2010 and decreased after that.

The final approach involves a comparison between exports and imports statistics. This trade gap analysis estimates the scale of the illicit market for cigarettes labeled as intended "for export," which are not subject to most taxes, even though the products will be sold locally. This analysis computes the difference between the total recorded exports and imports (NRC, 2015). If exports, as recorded by the exporters (originating countries), exceed imports as recorded by the importing country (receiving country), then the sum of trade discrepancies across all trade partners account for illicit trade while in transit. The approach is also used to measure smuggling activities in a country by assuming that all products pass initially through the legal export channel but are smuggled into the destination country. Hence, it does not capture small-scale smuggling such as bootlegging and illicitly traded cigarettes that are manufactured locally (NRC, 2015). However, some scholars like Feenstra et al. (1999) and Ahsan et al. (2014) asserted that the gaps in trade statistics could not be solely attributed to smuggling because the measure includes valid sources of discrepancies such as lags in exports and imports, commodity classification errors, valuation differences due to inclusion or exclusion of freight and insurance costs, incorrect specification of the goods' true origin, changes in exchange rates, and trade mis-invoicing. Likewise, it also does not capture illicit trade originating within the country, like the manufacture of counterfeit cigarettes.

Merriman et al. (2000) compared the exports and imports statistics from the UN Comtrade database to estimate the existing illicit trade in global commodities. This method was first used by Bhagwati (1974) when he used the reported imports of Turkey to all of its exporters and each of the exporters' reported exports to Turkey. Results of the study revealed that the reported imports are less than the reported exports due to under-invoicing intended to avoid the payment of tariffs. Simkin (1974) also used the same method to estimate the net smuggling in Indonesia and supported the results of Bhagwati (1974). Simkin's (1974) study showed that about 30% of Indonesian products were underreported to avoid paying taxes. Hence, looking at trade statistics gives an idea of how rampant smuggling is in a certain country. However, among the products that Merriman et al. (2000) examined, cigarette exports consistently and greatly exceed imports, with the gap fluctuating in response to policy reforms.

Merriman et al.'s (2000) results suggest that their estimates are consistent with how Joossens (1998) described the trend in the illicit tobacco trade. For manufactured tobacco products (Standard International Trade Classification (SITC) 22), they found out that there was a large discrepancy in the reported exports and imports wherein the exports are greater than the imports. This means that the excess in exports has been diverted to the illegal markets. Clearly, there is a loss in government revenue. The reported value of exports tells how much revenue would have been if all of the tobacco products have gone through customs and if only stricter enforcements have been implemented to curb smuggling. Between 1992 and 1996, more than 30% of the reported exports did not appear in the reported imports that greatly account for about 6% of worldwide consumption of cigarettes (Merriman et al., 2000).

In Thailand, Pavananunt (2011) used the same method except that the lags and short-term variations in cigarette trade have been smoothed out through a three-year averaging of exports and imports. Based on the author's findings, the reported imports based on Thailand's top 10 trade partners were lower than the reported exports from 1991 to 2006. Hence, the discrepancy in the trade data tells that the cigarettes have been sold illegally in Thailand or in other countries. In addition, when time difference effects were smoothed out by averaging, the estimates show that smuggling was highest during the year 1998 where it reached 17%. This peak may be attributed to the devaluation of the Thai Baht during 1997, which made the cost of imports relatively higher. Thus, the event led to a higher level of cigarette smuggling to curb tax and transaction costs.

Ahsan et al. (2014) conducted the same study on illegal cigarette trade by comparing the recorded imports of Indonesia and the recorded exports of their trading partners from the years 1995 to 2012. Based on their comparison, the illegal cigarettes in the country cost about US\$1 million to almost \$50 million yearly. The study also identified the top three sources of smuggled cigarettes: Singapore, China, and Vietnam. These countries are accountable for about 70% of trade gaps over the 17-year time period.

Nguyen et al. (2014) also used a similar method to indicate the presence of illicit trade in Vietnam in the early to mid-2000s. Their results show that discrepancies in trade records indicate that the value of cigarettes that have been smuggled into the country ranges from \$100 million to \$300 million in the period 2000 to 2010. Moreover, the main sources of these cigarettes are Singapore, Hong Kong, Macao, Malaysia, and Australia.

Abola et al. (2014) measured the illicit tobacco trade in the Philippines during the period 1994–2009 using trade data from the United Nations Commodity Trade (UN COMTRADE) database. The study estimated net smuggling by getting the difference between exports and imports. Although they had incomplete data, they were still able to establish that smuggling amounts to about one-tenth of the domestic market. Furthermore, this result is also reflected in the Euromonitor International data estimates, as mentioned by Quimbo et al. (2012). Their findings show that illicit cigarettes account for about one-fifth of total cigarette consumption. Thus, the Philippines is a recipient of smuggled cigarettes.

Direct Measurements

Direct measurements involve estimating a specific part of the illicit market based on the assessment of cigarette packs for markings that indicate taxes have been paid or other indicators showing compliance with government control measures such as health warnings. These are carried out through empty pack collections and pack observations, pack return and swap surveys, or face-to-face interviews to examine users' purchasing behavior by inquiring about illicit purchases (e.g., where they buy cigarettes, prices paid, types of cigarettes, etc.). The methods that fall under this category directly capture information about participants on both the demand and supply sides of the market. In addition, examining actual cigarette packs can often reveal the extent of tax avoidance and evasion as well as counterfeit cigarette sales prevalence (NRC, 2015).

One method to directly measure the size of illicit trade is by using representative surveys of tobacco users' purchasing behavior. Joossens et al. (2014) conducted an in-person survey across 18 European countries regarding the smoking habits of 18,056 respondents but asked the smokers

to show their cigarette packs or to exchange them for another at the end of the interview. The cigarette pack inspection component identified the packs as illicit if they carried a minimum of one of four criteria: (a) reported by smokers that they bought from illicit sources; (b) had an inappropriate tax stamp; (c) inappropriate health warning; or (d) price was relatively below the market price. Summary of their results showed that Latvia has the highest prevalence of illicit packs at 6.5%, whereas illicit packs were more frequent among those living in a country that shared a territory or sea border with Belarus, Moldova, Russia, or Ukraine. On the other hand, Guindon et al. (2013) used the same method combined with the International Tobacco Control Policy Evaluation Study (ITC) survey to gauge the size of the illicit market in Canada, France, Malaysia, and the United Kingdom. They found that 10% of smokers in Canada, France, and the United Kingdom reported that their last cigarette purchase came from an untaxed source, whereas prevalence estimates in Malaysia suggested higher levels of tax avoidance and evasion.

Another way to directly measure the illicit cigarette trade is to collect empty cigarette packs. Researchers examine the packages for the presence of inappropriate tax stamps, warning labels, and markings. Merriman (2010) collected both littered and properly disposed cigarette packs in random sample areas in Chicago. The packs were coded to record the location found and affixed tax stamps. The data were then compared to point-of-purchase data from select locations and census data on commuting behavior. The results showed that three-fourths of the collected packs did not have Chicago stamps. Similarly, a study by Chernick and Merriman (2011) using collected littered packs in New York City found that 15% of the packs collected had no tax stamps from the state. The rate further increased to 24% following the 2009 federal tax increase. Two more waves of data collection in the next months also suggested a high level of tax avoidance. Another study by Davis et al. (2014) using empty packs data from five northeastern cities in the United States of America (U.S.A.) also found a high prevalence of tax avoidance as 58.7% of the collected packs had nonlocal tax stamps, foreign tax stamps, or no tax stamps at all. However, this method had inconsistencies with results based on industry estimates. A study by Stoklosa and Ross (2013) using data from discarded packs on streets and surveys of packs in personal possession revealed that the industry estimates (22.9%) were higher by nearly half compared to their estimates of 14.6% using the survey data and 15.6% using the littered packs. Thus, evidence, especially from collaborations between governments and the tobacco industry, may have been manipulated to mislead the debate on tobacco control policies.

Empty pack surveys conducted in the Philippines in 2012 by the International Tax and Investment Center (ITIC) indicated that 5.9% of total cigarette consumption in the country was illicit (Southeast Asia Tobacco Control Alliance, 2014). Of the total illicit consumption, 95% came from domestic sources, 3.6% are counterfeit and believed to have originated from China, and 1.4% are considered non-domestic inflows. The estimates, however, were considered by Southeast Asia Tobacco Control Alliance (SEATCA) (2014) to be inaccurate and unreliable because the study failed to explain the estimate on domestic illicit. Given that Philip Morris Fortune Tobacco Corporation, which funded the survey, is one of the most popular brands in the Philippines, it is highly possible that these also comprise the majority of domestic illicit. Furthermore, the process of identifying illicit packs was not discussed in detail.

Pack observation, return, and swap studies are also used to measure the illicit cigarette trade directly. Pack observation surveys are conducted by choosing areas with heavy foot traffic to examine on the spot the cigarette packs of passing smokers for valid tax stamps and health

warning labels. Examples of studies that used this method include Sarntisart (2003) in Thailand, Little et al. (2020) in Georgia, and Maldonado et al. (2020) in five Colombian cities. The findings showed illicit trade of 13%, 6%, and 3.5%, respectively. However, this method has its limitations as choosing an area for the survey needs to be representative of tobacco sales in the market. Furthermore, the elderly, ill, rich, employed, and underaged smokers are less likely to be out in the streets and participating in surveys like this. Thus, researchers may not be able to get a representative sample of the smoking population. In addition, even trained researchers may miss invalid tax stamps.

On the other hand, pack return and swap studies have been conducted in some parts of Europe and the U.S.A. Pack return surveys generally require participants to mail empty cigarette packs in exchange for some form of compensation. Researchers were then able to deduce if proper jurisdictional taxes were paid using the postal codes. Using this method, Fix et al. (2013) found that approximately one-fifth of cigarette packs mailed to them from cities in the U.S.A. did not have appropriate tax stamps. However, similar to pack observation surveys, pack return and swap studies have their own limitations as collecting returned packs from a smoking population representative sample may be difficult due to the labor required, and the compensation received by participants remove the confidentiality.

In general, direct measurement methods have common shortcomings. Face-to-face interviews do not take into account instances when the respondent may have social desirability bias and imperfect recall. Furthermore, a sample with a majority of heavy or regular smokers will obviously result in higher proportions of the prevalence of tax avoidance behavior given that the behavior increases with smoking frequency. Also, respondents may be less likely to report illegal purchases despite anonymity and loose enforcement. On the other hand, estimates from the empty pack collections may be hard to extrapolate into the aggregate because the approach focuses on the community level. Lastly, pack observation surveys and pack return and swap surveys are more complex in terms of engaging a representative sample of the smoking population (NRC, 2015).

Experts Interview

The third category uses opinions from sources such as surveys or interviews of customs or tax law enforcement officials and other experts who can provide informed opinions and estimates on illicit trade in the country. Most of the estimates from this method appear in trade and government publications. These said estimates are weighted averages of both direct observations of the experts and residual methods, where the assigned weights are based on the expert's sense of the quality or validity of the specific measure (Merriman, 2001). According to Merriman (2001), asking the experts about the existing illegal market can be reliable for these reasons: (a) smugglers anonymously give information to researchers that are relevant in understanding the broadness of the market; (b) authorities use their power to extract confidential information and to monitor the seizures of the goods; (c) retailers have little to fear when researchers directly ask them about the source of the smuggled products; and (d) trade publications and professionals arrive at their estimates based on the conditions in the market. However, IARC (2008) noted that estimates from experts are subjective and may lean towards some biases based on the expert's position in the office and personal interests. Hence, the category should be combined with other categories to ensure consistency of results across all methods.

III. Data and Methodology

Drawing from the literature discussed in Section 3 of the paper, this study will employ the gap analyses approach to estimate the magnitude of illicit cigarette trade in the Philippines covering the period 2009–2017.⁷ The three approaches under the residual methods are used and supplemented by the results of the interview with BOC officials. Given the nature and different forms of illicit tobacco trade, the results from different approaches will give a better understanding of the scope of illicit trade. Most studies on large-scale smuggling, for example, analyze the discrepancies in reported trade data, whereas studies on small-scale smuggling analyze the gaps in consumption and sales data.

Only illicit trade in cigarettes will be covered by the study. Dutta (2019) showed that among the different tobacco products, cigarettes account for most of the illicit tobacco trade.

Methodology 1: Comparison between survey-based estimates of consumption and tax-paid cigarette sales

The first approach draws from Ahsan et al. (2014), where survey-based estimates of cigarette consumption are compared with legal cigarette sales. If estimates of cigarette consumption exceed legal cigarette sales, an illicit market exists, the size of which is measured by the difference between the two.

Cigarette consumption is estimated by using the information on smoking prevalence and smoking intensity from the Global Adult Tobacco Survey (GATS).⁸ The survey covered population 15 years old and was first implemented in the Philippines in 2009, and the latest was held in 2015.⁹ Because GATS is done for regular intervals only, some assumptions were made in the estimation of annual cigarette consumption for the period 2009–2017. The smoking prevalence and smoking intensity of 2009 were applied for 2009–2014, whereas the smoking prevalence and smoking intensity for 2015 were applied for 2015–2017. Although the Sin Tax Reform Law took effect in 2013, this study assumes that its full effect may have been felt only in 2015.

Data on the adult population are sourced from the Philippine Statistics Authority (PSA). Data on cigarette removals from the Bureau of Internal Revenue (BIR) represent tax-paid sales or legal cigarette sales. To account for respondent's under-reporting, the illicit cigarette trade was estimated under five thresholds: 0%, 10%, 20%, 30%, and 40%.

Methodology 2: Comparison between tax-paid cigarette sales and predicted changes in cigarette consumption

⁷ The authors requested BOC and BIR data on the magnitude of illicit tobacco trade and the corresponding loss in tax revenues but no data were given.

⁸ The survey was developed by the Tobacco Free Initiative (FTI), World Health Organization (WHO), and the Office on Smoking and Health (OSH) of the United States Centers for Disease Control and Prevention (US-CDC), in collaboration with WHO member countries to monitor the progress of commitments under the WHO Framework Convention on Tobacco Control (WHO-FCTC).

⁹ The authors initially included the Global Youth Tobacco Survey (GYTS) that covered the population aged 13-15 years old. However, the effects on illicit cigarette trade are insignificant since adult population accounts for about 99% of the estimates of total cigarette consumption. Also, most studies on illicit cigarette trade used adult cigarette consumption, thus allowing comparison of this study's results with existing studies.

Following Walbeek (2014), the second approach compares changes in tax-paid cigarette consumption with predicted changes in total cigarette consumption. Predicted changes in cigarette consumption are estimated using actual changes in income and cigarette prices and established price and income elasticities of demand for cigarettes. The predicted change in consumption is estimated as the change in real price multiplied by the price elasticity, plus the change in income multiplied by the income elasticity. If tax-paid cigarette consumption is decreasing by more than the decrease in predicted consumption, then the difference between the two changes measures the growth of the size of the illicit market.

Similar to the first methodology, cigarette removals from BIR correspond to tax-paid cigarette consumption. On the other hand, estimates of predicted cigarette consumption were calculated using the price and income elasticities of the demand for cigarettes and changes in income and cigarette price. Data on price and income elasticities were taken from Austria and Pagaduan (2019). Their findings showed that the demand for cigarettes in the country, although inelastic similar to other countries, has become more responsive to price increases over the period 2009 and 2015. Their estimates of price elasticity went up from -0.795 in 2009 to -0.927 in 2015; and the change was attributed to the Sin Tax Reform Law. Similar to other studies, their findings also showed that demand for cigarettes rises with income. Their estimates of income elasticity went up from 0.526 in 2009 to 0.557 in 2015.

Changes in cigarette price were approximated by changes in the CPI index of tobacco, whereas changes in income were approximated by the growth of GDP. Basic data for estimating both variables were taken from the Philippine Statics Authority (PSA).

Methodology 3: Trade gap analysis

The third approach measures the presence of the illicit cigarette market by annual trade discrepancies. Trade discrepancy is the difference between the value of exports based on the records of the trading partners of the Philippines and the value of imports recorded by the country. The sum of the trade discrepancies is considered the size of the illicit trade, commonly called smuggling.

Similar to Merriman et al. (2000) and Abola et al. (2014), the primary source of exports and imports data was the UN Commodity Trade Statistics (UN COMTRADE). The database includes three tobacco product codes, namely HS2401 (unmanufactured tobacco; tobacco refuse), HS2402 (cigars, cheroots, cigarillos, and cigarettes of tobacco or of tobacco substitutes); and HS2403 (manufactured tobacco & manufactured tobacco substitutes & "homogenized" or "reconstituted"). However, only HS2402 was included in this study because illicit trade on cigarettes accounts for most of the illicit trade based on the WB (2019) report, as presented earlier.¹⁰

Comparison of the methodologies

¹⁰ Initial estimates of this study show that, when all three product categories are considered, HS2402 accounts for nearly three-fourths of the trade discrepancies in the Philippines. Likewise, the dataset does not include electronic cigarettes, making it consistent with the data on tax-paid cigarettes in Methodology 1.

As the methodologies are different from each other, the results could vary. However, they could be complementary. The combination of methods is necessary to cross-validate estimates (Joossens & Raw, 2012). By utilizing the three methods, the study will be able to come up with reasonable estimates of the illicit cigarette trade in the Philippines.

V. Results and Discussion

Method 1: Comparison between survey-based estimates of consumption and tax-paid cigarette sales

Smoking prevalence went down from 27% in 2009 to 21.5% in 2015 for the country's population 15 years old and over (Table 1). The increase in excise tax due to the Sin Tax Reform Law may have played an important role in the decline. However, smoking intensity slightly increased from 10.6 to 11 sticks per day for the same period. Estimates of cigarette consumption increased from 63.859 billion cigarettes in 2009 to 70.785 billion in 2014 (Table 2). Although it went down by 14% in 2015, increases were registered until 2017. Nonetheless, cigarette consumption in 2017 was lower by 2.4% compared to 2009.

A general decline in tax-paid cigarette sales is observed from 2009 to 2017, except in 2010 and 2012 when spikes in sales were registered (Table 2). Legal sales of cigarettes took a massive hit with the implementation of the unitary tax scheme in 2017. The decline was nearly 48% from what was registered in 2012, one year before the increase in excise tax took effect.

The size of the illicit cigarette trade is determined by the excess of cigarette consumption over tax-paid sales. The estimates in Table 2 show no evidence of illicit trade up until the first year of implementation of the Sin Tax Reform Law in 2013. Consumption of illicit cigarettes, however, is found to exist in 2014, 2016, and 2017 in all but one under-reporting thresholds. If the 40% threshold is considered, the illicit market exists because of the implementation of the Sin Tax Reform Law in 2013.

The magnitude of illicit consumption is increasing, accounting for 3.3% to 12.8% of total cigarette consumption if the 10% under-reporting threshold is considered (Table 3). The size is much larger in higher under-reporting thresholds; it ranges from 33.3% to 42.8% of total consumption for 40% under-reporting. It should be noted that the 2017 estimates (with 10% under-reporting) are very close to the estimates of Euromonitor International (2018) on the volume of illicit trade in the country of 8.9 billion sticks and 12% of total consumption.

Although the share of illicit consumption did not change much in 2014 and 2016, there was a substantial increase in 2017 in all the under-reporting scenarios, signifying that illicit trade has become rampant. In fact, even if no respondent under-reporting is assumed to exist, 2.79% (equivalent to 1.74 billion cigarette sticks) of total cigarette consumption is considered illicit (Table 3). Considering the 10% threshold, illicit trade grew by as much as 234% between 2016 and 2017.

It should be noted that 2017 was the year when the unitary excise tax scheme took effect. Under the scheme, the relative price increase is the same for all cigarette brands and thus, removing the incentive for smokers to shift to lower-price brands. The illicit trade could be primarily of domestic origin. It was in 2017 when Mighty Corporation came under fire for its production and distribution of illicit trade. Millions of cigarette packs were confiscated by the government from the

company's various warehouses around the country because of the company's use of counterfeit BIR tax stamps. In addition, millions of pesos worth of counterfeit brands were confiscated from small factories producing fake cigarettes bearing famous brands.¹¹

To determine the amount of tax revenue loss, volume estimates of illicit trade were multiplied by the excise tax on cigarettes under the Sin Tax Reform Law; and the results are shown in Table 4. The amount in 2017 ranges from a low of PhP11.96 billion to a high of PhP40.0 billion under an under-reporting threshold of 10% and 40%, respectively.

Method 2: Comparison between tax-paid cigarette sales and predicted changes in cigarette consumption

As presented earlier, tax-paid cigarette sales, in general, declined over the years, more so since the increase in excise tax in 2013 (Table 5). Income, as measured by GDP, rose between 6–7% over the period of the study, except in 2009 and 2011. Cigarette prices increased substantially at nearly 49% in the first year of implementation of the excise tax increase, after which the increase stabilized. As expected, cigarette consumption went down significantly due to the price increase. The decline ranges between -35.2% and -41.5% (Table 5).

The difference between the growth of tax-paid cigarette consumption and the growth of the predicted changes approximates the growth of the illicit cigarette market. As shown in Table 5, the estimates support the presence of illicit trade in 2009, 2011, 2014, 2016, and 2017. The highest growth was registered at nearly 19% in 2016.

Method 3: Trade gap analysis

Figure 1 shows the huge discrepancy between the value of cigarettes exported by the Philippines' trading partners to the country and the value imports recorded by the country. Up until 2012, the magnitude is about 97% of what could have been the country's total imports if all the exports reached the country's shore (Figure 2). These discrepancies most likely account for the consumption of smuggled cigarettes in the country. Some may argue that the discrepancies may have been caused by product misclassification and under-invoicing of shipment. However, the different measures implemented by the BOC, as discussed in Section 2, can eliminate these possibilities. Also, given the huge amount involved, it is reasonable to say that the discrepancies suggest illicit activities. Nonetheless, the discrepancies have been narrowing down, except in 2012 and 2013, signifying that smuggling is going down. The largest decline was registered in 2017 at -1.1%.

Based on the interview of the authors with a BOC administrator, the most common form of smuggling in the Philippines is technical smuggling, where importers undeclare the value of their shipment or declare the product as another product. An example of technical smuggling was

¹¹ The following are the common brands and variations that have been faked and sold as branded ones: Marlboro, Lucky Strike, Camel, Winstons, Philip Morris, Fortune Menthol, Fortune Lights, Fortune Blue, Jackpot Menthol, Jackpot Red, Hope, More, Fortune Red, Marlboro Black Menthol and Mighty Menthol. These counterfeit cigarettes have a total estimated value of P21.5 million from three separate raids that have been conducted in Manila and Cagayan de Oro in 2017.

committed by Mighty Corporation. The acetate tow that it imports to produce cigarettes has been undeclared, and it amounted to a P1.08 billion losses in government revenue.

The top five sources of cigarette smuggling in the country are Hong Kong, Singapore, China, Indonesia, and Vietnam (Figure 3). All are the country's Asian neighbors, which makes proximity a factor in the smuggling behavior of the countries. Together, they account for about 85–96% of cigarette smuggling to the country, and their total share has been increasing over the years (Figure 4). This is consistent with the work of Abola et al. (2014), where Hong Kong, Singapore, and China occupied the top three spots in tobacco smuggling in the country for the period 1994–2009.

As shown in Figure 3, Hong Kong and Singapore were consistently ranked as the top two sources of smuggled cigarettes during the period 2009–2015. Based on the interview made for this study with a representative from the BOC, these two countries were used by smugglers as smuggling channels. Smugglers found a way to confuse BOC authorities by passing their goods through these countries and make it appear the goods originate from them. Since both countries are known for their efficient customs operations, the goods originating from them generally fall under the green lane of multinational and top reputable importers. This means the goods are subject to minimal verification and checking, if not outright clearance, at the Philippines' seaports and airports.

Nonetheless, the role of each country in the smuggling activities in the Philippines has been changing over the years, as noticeable from Table 6 and Figure 3. Although Hong Kong and Singapore account for the largest contribution, their shares have been going down. Hong Kong's share has gone down by 16 percentage points between 2009 and 2017, whereas Singapore's share substantially decreased from 28.7% to 4% during the same period. In contrast, smuggling from China, Indonesia, and Vietnam have significantly gone up. China's contribution rose from only 8% in 2009 to almost a quarter in 2017; for Vietnam, from less than 1% to about a third in 2017; and for Indonesia, from less than 6% to almost one-fifth in 2017.

What may have caused this reversal in role among the top sources of cigarette smuggling into the country? According to von Lampe et al. (2012), China is the current leading supplier of counterfeit cigarettes. This prominent role of China in the global illegal cigarette market began in the late 1990s when China's illegal cigarette industry shifted to exporting large numbers of counterfeit cigarettes bearing Western brands to black markets abroad. The same study identified the Philippines as one of the country destinations of large numbers of fake cigarettes coming from China.¹²

The WHO-FCTC's "Protocol to Eliminate Illicit Trade in Tobacco Products: Questions and Answers" has also identified China as one of the main origins of illicit cigarettes.¹³ On the other hand, Indonesia and Vietnam were classified by the same protocol as two of the main transit and transit destination countries.¹⁴

¹² The other country destinations are Australia, South Africa, the United Kingdom, Ireland, and the United States.

¹³ The other main origin countries include Paraguay, the Russian Federation, the United Arab Emirates, Ukraine, Belarus, Moldova, Kenya and Zimbabwe.

¹⁴ The other countries are Egypt, Tunisia, Algeria, Libya, Mali, Niger, Guinea, Nigeria, Syria, Malaysia, India, Cambodia, Argentina, Chile, Peru, Bolivia, Colombia, Venezuela, Poland, Lithuania, Greece, Montenegro, Turkey and Bulgaria

Comparison and synthesis: findings from the 3 methodologies

As indicated earlier, the estimates of the magnitude of illicit trade in the country using the methodologies employed by this study cannot be compared. *Method 1* measures the magnitude but cannot distinguish the forms of illicit trade. Estimates of cigarette consumption include both legal and illicit cigarettes, the latter either of domestic or external origin. On the other hand, *Method 2* measures the growth of illicit market but cannot also distinguish the form of illicit trade. Finally, *Method 3* measures one form of illicit trade, which is smuggling, that is, illicit trade external to the economy. This means that that the estimates exclude illicit trade of domestic origin. However, the common finding of the three methodologies is the presence of illicit cigarette market in the country. Specifically, illicit trading of cigarettes in the country has flourished after the increase in excise tax.

Illicit trade due to smuggling has decreased over the years (Methodology 3). Given the presence of illicit cigarette consumption and the growth of illicit cigarette market as measured by Methodology 2 and Methodology 3, respectively, the decrease in smuggling implies that the source of illicit cigarette trade may have shifted to domestic origin. Initially, illicit domestic trade came from the use of fake cigarette tax stamps, as exemplified by the case of Mighty Corporation in 2017, as discussed in the preceding sections. Recently, however, the landscape of illicit trade in the country has changed. From the use of fake cigarette stamps, the scheme has shifted to the production of counterfeit cigarettes bearing Western brands by small manufacturers using portable cigarette-making machines smuggled from China (Padin, 2019). The production of fake cigarettes filled the vacuum in the illegal market left by Mighty Corporation.

VI. Conclusions and Policy Recommendations

This study estimated the size of illicit cigarette trade in the Philippines covering the period 1997–2017 using residual methods. Three approaches involved comparison of tax-paid cigarette sales and survey-based estimates of cigarette consumption; comparison of tax-based cigarette sales and predicted changes in cigarette consumption; and trade gap analyses.

All three approaches provide strong evidence of the illicit cigarette trade in the country. More specifically, consumption of illicit cigarettes was highest in 2017 when the unitary excise rate was implemented. The decline in cigarette smuggling in the country implies that illicit trade is domestic in nature or sourced from within the country. As discussed earlier, this includes counterfeit production and the use of fake tax stamps. It cannot be said, however, that the increase in illicit trade was caused by the increase in excise tax.

The illicit cigarette trade weakens the effectiveness of government measures to lower tobacco consumption, particularly the increase in excise tax. The illegal trade enhances the affordability and availability of cigarettes and results in a loss in government tax revenues. This raises the need to address the increasing illicit trade.

The analysis of the regulatory environment to control illicit cigarette trade in the country gives the impression that the entire system of cigarette manufacturing (from the production in cigarette factories to the release in the market) and cigarette importation (from the arrival of the goods to the country to the release in the market) are both highly controlled. But why illicit trade continues? Based on the WB (2019) report, non-price factors are considered more important

determinants of illicit trade. These include corruption, the presence of informal distribution networks, and weak regulatory frameworks.

To address illicit cigarette trade in the country, this study would like to recommend the following. First, the increase in illicit cigarette trade should not be an excuse not to increase the excise tax on cigarettes. Instead, the ongoing tax policy reforms should be taken as part of a comprehensive program to lower cigarette consumption in the country. Second, strengthening tax administration and enforcement in the country should be given priority so that the required taxes are paid and collected prior to the release of the cigarettes from the place of production and ports. This, in turn, requires enhancing the capacity of enforcers to implement tax laws and other non-tax regulations to combat illicit trade. Third, as illicit cigarette trade thrives with the availability of informal distribution channels and organized crime networks for the case of smuggling, government institutions involved in the entire system should be strengthened to prevent corruption. Fourth, because illicit trade involves players from other countries, a coordinated approach in combatting illicit trade with the country's neighbors, particularly China, Vietnam, and Indonesia, should be pursued. Finally, although not directly related to the findings of the study, the rehabilitation of smokers who are struggling to quit smoking should be given equal importance. Otherwise, nicotine addiction will always be an easy excuse for smokers to look for cheaper substitutes, and a reason for illicit cigarette trade to thrive.

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Table 1*Estimates of Cigarette Consumption, Population 15 years old & older, 2009–2017*

Year	Population 15 years old & older (million)	Smoking prevalence (%)	Smoking intensity (sticks per day)	Estimated cigarette consumption (billion sticks)
2009	61.131	27.0	10.6	63.859
2010	61.380	27.0	10.6	64.119
2011	63.273	27.0	10.6	66.097
2012	64.757	27.0	10.6	67.647
2013	66.254	27.0	10.6	69.211
2014	67.761	27.0	10.6	70.785
2015	68.823	21.5	11.0	60.627
2016	70.734	21.5	11.0	61.059
2017	72.196	21.5	11.0	62.321

Note: Smoking prevalence & smoking intensity are for manufactured cigarettes.

Source: Authors' estimates

Table 2*Illicit Cigarette Trade: Comparison Between Survey-Based Estimates of Cigarette Consumption and Tax-Paid Cigarettes, 2009–2017*

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimated cigarette consumption (billion sticks)	63.859	64.119	66.097	67.647	69.211	70.785	60.627	61.059	62.321
Tax-paid cigarette sales (billion sticks)	82.092	105.138	92.740	115.687	91.027	75.546	82.824	64.780	60.580
Illicit consumption, by under-reporting level (billion sticks)									
0%	-18.23	-41.02	-26.64	-48.04	-21.82	-4.76	-22.20	-3.72	1.74
10%	-11.85	-34.61	-20.03	-41.28	-14.89	2.32	-16.13	2.39	7.97
20%	-5.46	-28.19	-13.42	-34.51	-7.97	9.40	-10.07	8.49	14.21
30%	0.93	-21.78	-6.81	-27.75	-1.05	16.47	-4.01	14.60	20.44
40%	7.31	-15.37	-0.20	-20.98	5.87	23.55	2.05	20.70	26.67

Source: Authors' estimates

Table 3*Penetration of Illicit Cigarette Trade, 2013–2017*

	2013	2014	2015	2016	2017
Total estimated cigarette consumption (billion sticks)	69.211	70.785	60.627	61.059	62.321
Illicit cigarette trade, by under-reporting level (billion sticks)					
0%					1.74
10%		2.32		2.39	7.97
20%		9.40		8.49	14.21
30%		16.47		14.60	20.44
40%	5.87	23.55	2.05	20.70	26.67
% Penetration of illicit trade					
0%					2.79
10%		3.27		3.91	12.79
20%		13.27		13.91	22.79
30%		23.27		23.91	32.79
40%	8.48	33.27	3.39	33.91	42.79

Source: Authors' estimates

Table 4*Estimates of Tax Revenue Loss Due to Illicit Cigarette Trade, 2013–2017*

	2013	2014	2015	2016	2017
Illicit consumption, by under-reporting level (billion packs of 20s)					
0%					0.0871
10%		0.1159		0.1193	0.3987
20%		0.4698		0.4246	0.7103
30%		0.8237		0.7299	1.0219
40%	0.2934	1.1776	0.1027	1.0352	1.3335
Scenario 1: Tax revenue loss, by under-reporting level, (billion pesos)					
0%					2.612
10%		1.970		2.982	11.960
20%		7.986		10.614	21.309
30%		14.003		18.246	30.657
40%	3.521	20.020	2.156	25.879	40.005
Scenario 2: Tax revenue loss, by under-reporting level, (billion pesos)					
0%					2.612
10%		3.128		3.459	11.960
20%		12.684		12.312	21.309
30%		22.240		21.166	30.657
40%	7.336	31.796	2.875	30.019	40.005

Note: Since the excise tax are for packs of 20 cigarette sticks, the volume of illicit trade was converted to packs of 20s.

Assumptions:

Scenario 1: if net retail price is P11.50 and below per pack

Scenario 2: if net retail price is more than P11.50 per pack

Source: Authors' estimates

Table 5

Illicit Cigarette Trade: Comparison Between Predicted Changes in Cigarette Consumption and Changes in Tax-Paid Cigarettes, 2009–2017

Year	Tax-paid cigarettes		Percentage Change (%)		Scenario 1		Scenario 2	
	Volume (billion packs) (1)	% change (2)	Tobacco price (3)	Real GDP (4)	% Change in Cigarette Consumption (5)	% Change in Illicit Market (6)	% Change in Cigarette Consumption (7)	% Change in Illicit Market (8)
2009	82.092	-13.62	4.39	1.15	-2.89	10.73	-2.89	10.73
2010	105.138	28.07	2.92	7.63	1.69	-26.38	1.69	-26.38
2011	92.740	-11.79	6.62	3.66	-3.34	8.46	-3.34	8.46
2012	115.687	24.74	5.78	6.68	-1.08	-25.83	-1.08	-25.83
2013	91.027	-21.32	48.97	7.06	-35.22	-13.90	-41.46	-20.15
2014	75.546	-17.01	5.35	6.15	-1.02	15.99	-1.53	15.47
2015	82.824	9.63	4.46	6.07	-0.76	-10.39	-0.76	-10.39
2016	64.780	-21.79	7.36	6.88	-2.99	18.80	-2.99	18.80
2017	60.580	-6.48	8.12	6.68	-3.80	2.68	-3.80	2.68

Assumptions:

Scenario 1: 2009 price & income elasticities were used to estimate changes in cigarette consumption for 2009-2014 while 2015 price & income elasticities were used 2015-2017.

Scenario 2: 2009 price & income elasticities were used to estimate changes in cigarette consumption for 2009-2012 while 2015 price & income elasticities were used for 2013-2017.

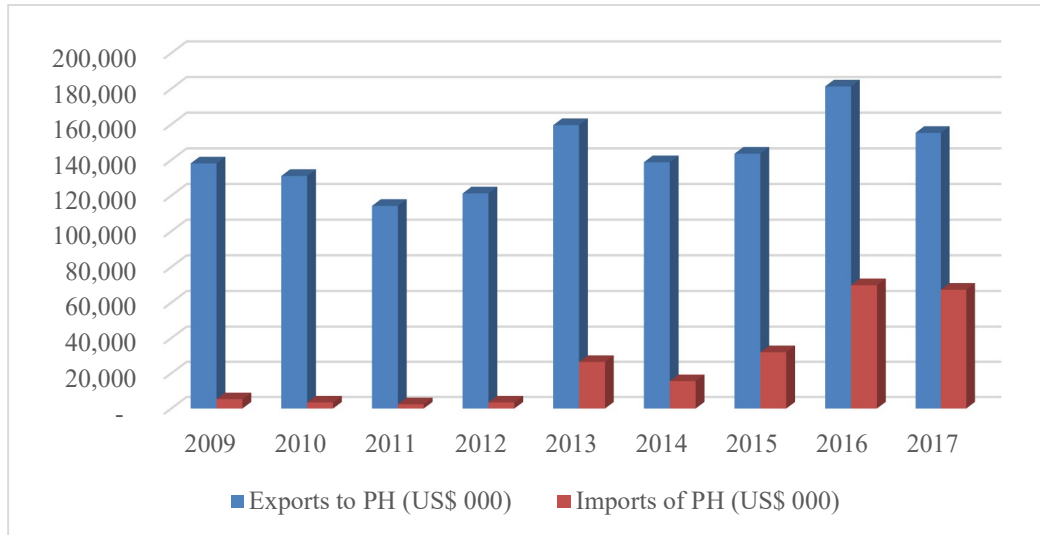
Source: Authors' estimates

Table 6*Top 5 Sources of Illicit Cigarette Trade, by Percentage Share, Philippines, 2009–2017 (%)*

Year	Hong Kong	Singapore	China	Indonesia	Vietnam	Others	Total
2009	40.2	28.7	8.0	5.7	0.9	16.4	100.0
2010	39.6	24.2	11.6	7.9	2.4	14.3	100.0
2011	37.3	32.0	14.2	8.6	2.9	5.1	100.0
2012	36.3	28.9	17.4	7.1	2.5	7.8	100.0
2013	33.6	25.9	18.5	5.9	4.7	11.3	100.0
2014	37.2	23.3	17.9	6.6	5.1	9.8	100.0
2015	32.8	22.3	18.3	11.3	11.7	3.6	100.0
2016	20.0	24.3	15.0	10.2	26.6	4.0	100.0
2017	23.8	4.0	24.9	19.7	30.6	-3.1	100.0

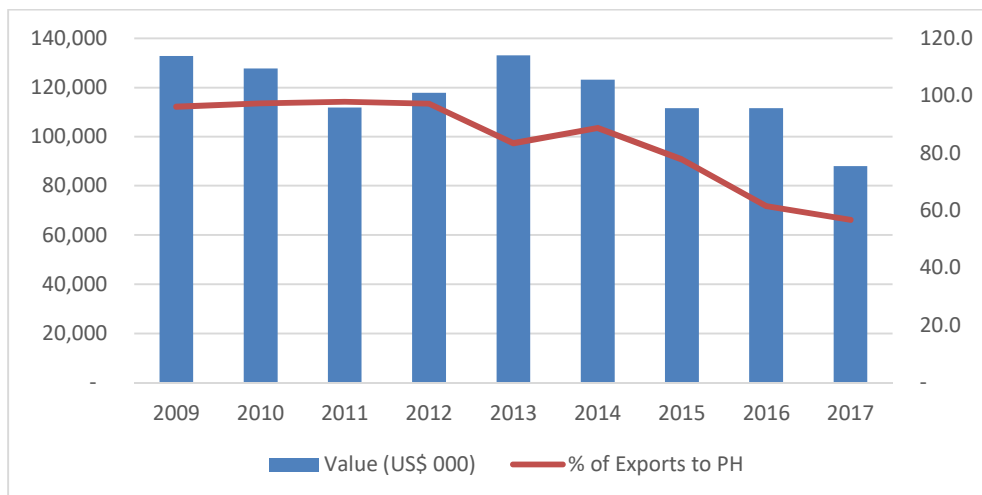
Sources: Authors' estimates

Figure 1
Value of Exports to and Imports, Cigarettes, Philippines, 2009–2017.



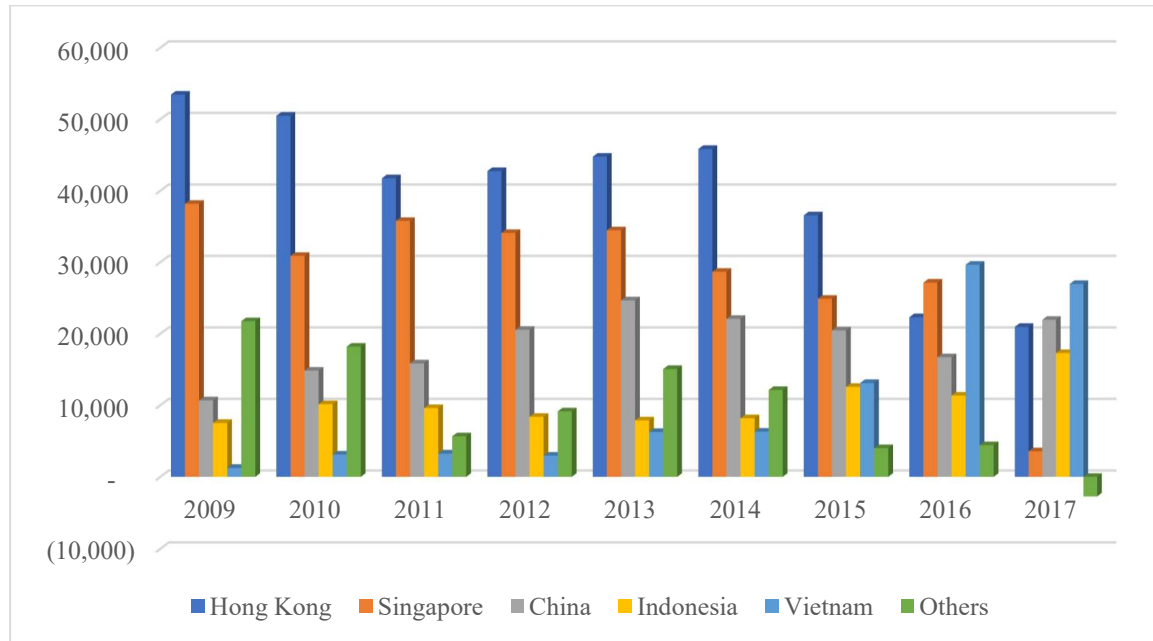
Source of basic data: COMTRADE

Figure 2
Trade Discrepancy, Cigarettes, Philippines, 2009-2017



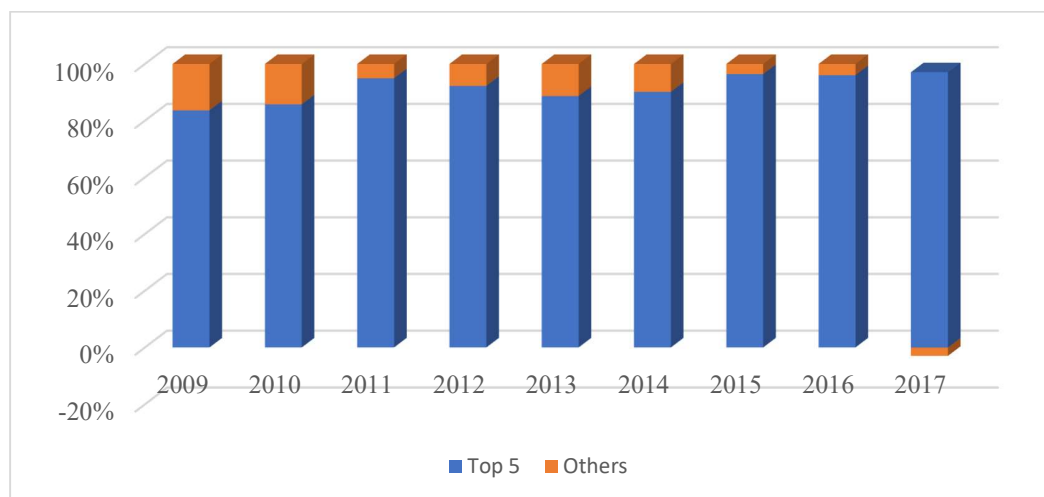
Source: Authors' estimates

Figure 3
Top Five Sources of Illicit Cigarette Trade, Philippines, 2009–2017.



Source: Authors' estimates

Figure 4
Share of Top 5 Sources of Illicit Cigarette Trade, Philippines, 2009–2017 (%)



Source: Authors' estimates