



P R A K A R S A
Welfare Initiative for Better Societies

THE ILLICIT CIGARETTE TRADE IN INDONESIA

Widya Kartika, Rahmanda Muhammad Thaariq, Dwi Rahayu Ningrum
Herni Ramdlaningrum, Luhur Fajar Martha, Setyo Budiantoro



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Authors:

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Researchers:

Widya Kartika, Rahmanda Muhammad Thaariq, Dwi Rahayu Ningrum, Herni Ramdlaningrum, Setyo Budiantoro, Luhur Fajar Martha, Wildan Mukhallad, Fajrin Kurnia, Muhammad Fajar Rakhmadi

Enumerators:

Abd Haris Zainuddin, Adella Oktavia, Adik Saiful Yulianto Safikri, Ahmad Suratmi, Ali Zahid Habibullah, Anbeja Kirsy, Ardian Firmansyah, Dio Farhan Hudaya, Eka Damayanti, Gandi Vimala, Hadisaputra, Haekal Ghifari, Haikal Fadlan Mugits, Hudan Mahfudin Nursalim, Naufal Qowam, Nico Purwanto, Nohari, Ola Aldeva Fenchia, Prilly Putri Herdianti, Rachmat Affandi, Rachmat Ichsan, Rendhy Firmanzah, Rian Fiarno Dwi Cahyo, Rianto, Rizki Hendarji Putra, Sartika Sabani, Setyo Budi Purwono, Sipyanti, Sunardi, Thufeil Muhammad Tyansah

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Herni Ramdlaningrum

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EXECUTIVE SUMMARY

This report presents Perkumpulan PRAKARSA's findings on the illicit cigarette trade in Indonesia. The analysis in this report focuses on three aspects: the magnitude and demand for illicit cigarettes; factors that affect illicit cigarette consumption; and the price elasticity of demand of substitute cigarettes. The aims of the research are to measure the magnitude of the illicit cigarette trade in Indonesia from a consumer approach; determine factors that affect illicit cigarette consumption; analyze the possibility of increasing the price of cigarettes and the impact on the illicit cigarette trade; and to provide a transparent methodology.

This research was conducted to provide local evidence for effective tobacco tax policy in Indonesia. The research is expected to be utilized by the Tobacco Control Network for policy advocacy on tobacco control in Indonesia as similar independent research has been very limited and has resulted in ineffective policies and undermined efforts to reduce smoking prevalence in Indonesia. So far, there have only been a few independent studies on illicit cigarettes in Indonesia. The research aims to fill this gap in order to provide evidence for policy makers and tobacco control advocates in Indonesia amidst efforts to reduce smoking prevalence, and more broadly to achieve the Sustainable Development Goals (SDGs).

Indonesia implemented universal healthcare coverage (JKN) starting in 2014. This was around the same time as the high rates of healthcare expenditures for smoking-related illnesses became evident. In 2016, JKN spent Rp14.5 trillion for medical claims for chronic obstructive pulmonary disease, coronary heart disease, and certain perinatal and cancer disorders. Furthermore, in 2010, productivity losses caused by early mortality and disability due to tobacco consumption reached more than 3.5 million disability-adjusted life years (DALY), equivalent to an economic loss of Rp106 trillion. Unfortunately, the Indonesian government is still reluctant to raise the excise tax on cigarettes. Failure to act is primarily due to concerns rooted in the tobacco industry's argument about the potential for increased illicit trade if the cigarette excise is raised. The Indonesian Association of Cigarette Entrepreneurs (GAPRI) claims that one of the reasons for the increase in illegal cigarettes and the decline in cigarette production is because of the high price of cigarettes due to the increase in excises. The industry also constructs narratives where the increase will lead to uncontrolled consumption and the undermining of tax revenues.

Perkumpulan PRAKARSA is funded by the University of Illinois at Chicago's (UIC) Institute for Health Research and Policy to conduct economic research on tobacco taxation in Indonesia. UIC is a partner of the Bloomberg Initiative to Reduce Tobacco Use. The views expressed in this document cannot be attributed to, nor do they represent, the views of

UIC, the Institute for Health Research and Policy, or Bloomberg Philanthropies. The scope of this research is at the national level, conducted in six selected provinces of Indonesia—Lampung (Lampung Selatan regency), Banten (Tangerang Selatan regency), West Java (Bandung regency), Central Java (Banyumas regency), East Java (Malang city), and South Sulawesi (Gowa regency)—as a representation of varied geographical characteristics relative to Indonesia’s population density and involving 30 enumerators from each of the selected provinces.

This study used primary data from a face-to-face survey. This method was chosen, because it can be used to collect information in a direct way and analyze the consumers’ purchasing and consuming behavior. Furthermore, it has a more accurate estimation as compared to the littered pack method, which lacks sample representation when data is collected in a limited geographical area. Additionally, the sample may be disrupted by commuting patterns and tourists. This study used a sample from 1,440 respondents in the six provinces mentioned above. The survey was conducted by 30 trained enumerators in July 2018 for approximately three weeks. The respondents in the survey were active smokers on the day of survey and had been consuming cigarettes over the last 30 days. In addition, a total of 1,201 cigarette packs were collected. Packs were classified as illicit through the validity of excise tapes and health warning images. In this study, the scope of current active smokers was limited to a group of adults between 18-65 years old.

The important findings of the survey and pack collection are the following: Among 1,201 packs of cigarettes, only 20 were identified as illicit without excise bands, fake excise bands, or health warnings. Twenty percent of respondents stated that they had smoked illicit cigarettes at least once. Higher income smokers were less likely to have smoked an illicit cigarette. Approximately 43 percent of smokers who had smoked illicit cigarettes had an income of less than Rp1.500.000 per month, while only 1.8 percent of smokers who had smoked illicit cigarettes had an income of more than Rp5.000.000 per month. In relation to the price elasticity, 12 percent of smokers indicated they intended to quit if faced with a 50 percent price increase, while 32 percent of smokers intended to quit if the price of cigarettes increased by 100 percent. Furthermore, for the smokers who decided to continue smoking when faced with either of the price increases, about half of them intended to reduce their consumption of cigarettes.

Based on these findings, we concluded that the argument constructed by the tobacco industry that illicit trade in cigarettes would increase if the excise tax is increase is invalid. On the contrary, an increase in price of cigarettes could reduce smoking prevalence. Therefore, we recommend that the government continue the simplification of excise tax tiers and invests in tax administration and enforcement to prevent the illicit trade of cigarettes and effectively reduce smoking prevalence. The findings of our research indicate that price increases will be effective in reducing tobacco use in

Indonesia. Further reductions in the number of excise tax tiers will result in tax increases having a larger impact on price increases; thus, the government should continue to reduce the number of excise tax tiers in order to improve the effectiveness of tobacco tax policy.

FOREWORD

Illicit trade of cigarettes is one of the narratives used by the tobacco industry to influence policy makers in order to stall tobacco regulation, particularly tobacco excise tax and price increases. Due to the low tobacco excise tax rates, the prevalence of tobacco consumption in Indonesia is reaching a critical point as cigarettes are becoming more affordable for everyone, including children. The high rate of smoking prevalence has negatively impacted the economy, health and society as a whole, causing a high rate of morbidity and mortality, triggering direct healthcare expenditures and indirect costs, and the loss of productivity and income for families.

Perkumpulan PRAKARSA recognizes fiscal and tax instruments are tools that can effectively reduce smoking the prevalence in Indonesia. Based on the WHO's recommendation, governments should adopt a simple tax system, including a uniform specific tax, and the tobacco excise should comprise, at a minimum, 70 percent of the final consumer price. However, many countries, including Indonesia, have yet to adopt adequate tax policies. Perkumpulan PRAKARSA, as a think tank organization conducted research to measure the level of illicit trade in cigarettes and understand smoker responses to price increases of cigarettes. Therefore, we present this research report on "The Illicit Cigarette Trade in Indonesia in 2018". We hope that this report provides accurate and reliable estimates of the level of illicit trade in cigarettes in Indonesia to better inform tobacco tax policy discussions and reforms.

As an independent research institution, PRAKARSA is open to discuss and share the research with all stakeholders on this issue. Moreover, it is hoped that this report will be beneficial for policy makers, academia, journalists, and tobacco control advocates. Lastly, I would like to express appreciation to the PRAKARSA research team and UIC for this solid research process and product. I am looking forward to collaborating further with UIC, the Indonesia Tobacco Control Network, the Government of Indonesia, and other organizations around the globe to advocate for tobacco control in Indonesia.

Jakarta, March 2019

Ah Maftuchan

Executive Director of Perkumpulan PRAKARSA

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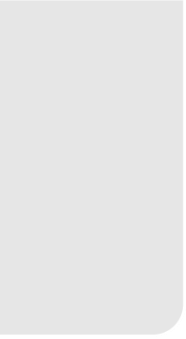
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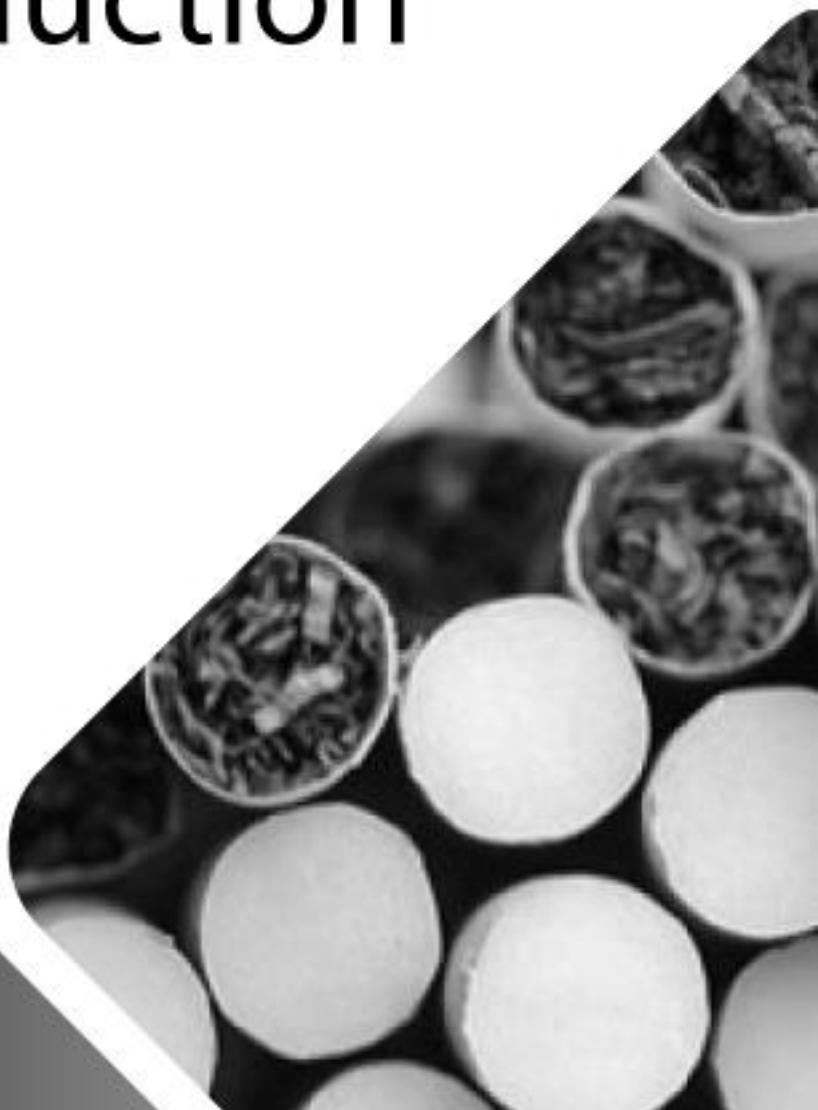
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I

Introduction



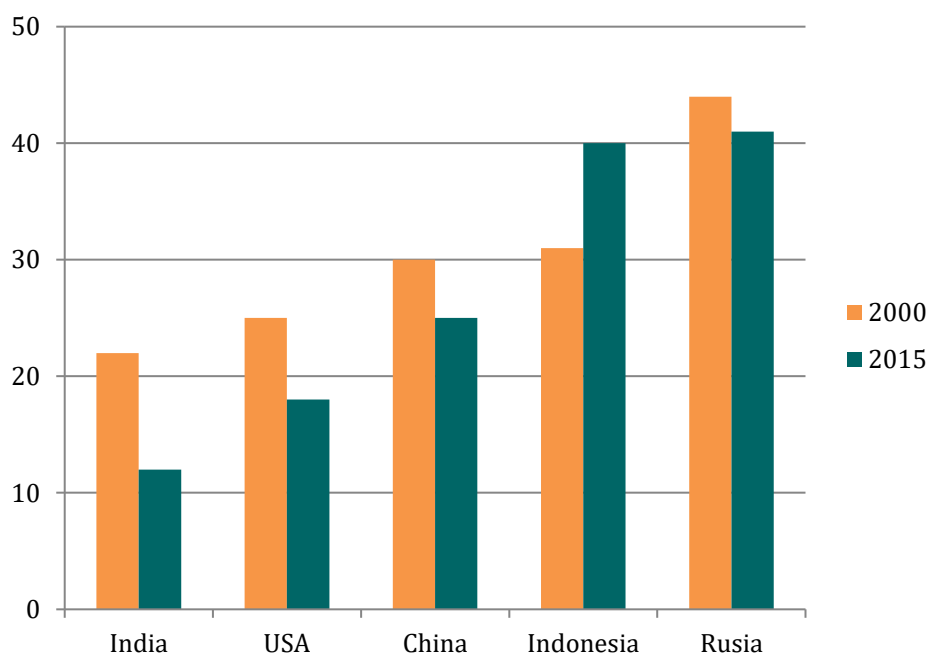
1. INTRODUCTION

1.1 Background

The current population in Indonesia according to the United Nations is estimated at 269 million as of April 2019, which is the fourth highest population in the world. This is equivalent to 3.5 percent of the total world population and the working age population of Indonesia, which has reached 181 million, is one of the country's economic strengths. This productive capacity, however, has been threatened by the increasing number of tobacco-related diseases and deaths. Over the past fifteen years, the prevalence of smoking in Indonesia has increased significantly, from 31 percent in 2000 to 40 percent in 2015 (WHO, 2015). In 2013, the prevalence of smoking among males was 66 percent, while among females it was 6.7 percent, which is twelve times higher than prevalence rates in 1995 (IAKMI, 2014; Ahsan, 2015). Indonesia implemented universal healthcare coverage (JKN) in 2014, around the same time as high medical expenditures for tobacco-related illnesses became evident. In 2016, JKN spent Rp14.5 trillion in medical claims for chronic obstructive pulmonary disease, coronary heart disease, and certain perinatal diseases and cancers. In 2017, this spending increased to Rp18.4 trillion.

Meanwhile, the prevalence of smoking is declining in many countries, such as Russia, the United States, India and China (Figure 1).

Figure 1. Countries with the Highest Smoking Prevalence

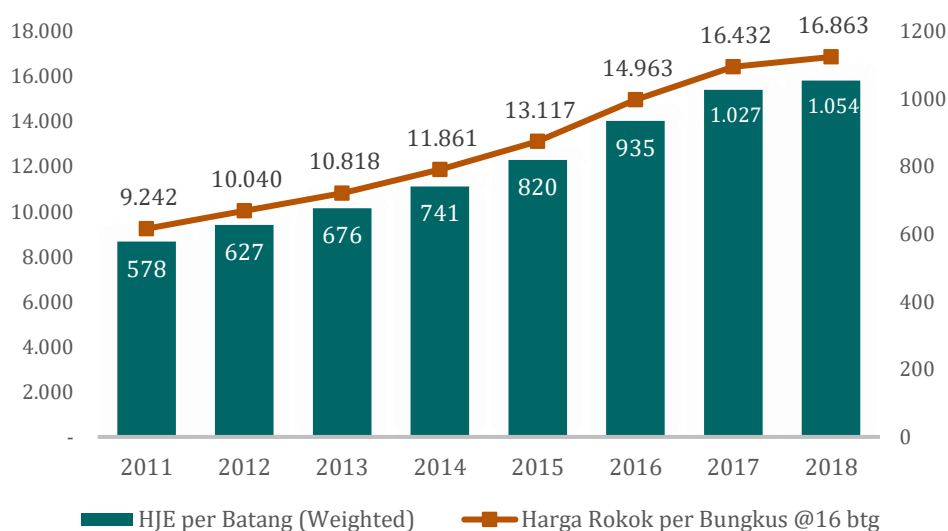


Source: WHO Global Health Observatory, 2016

Smoking has been a major contributor to the disease burden in Indonesia. Diseases attributable to smoking include hypertension, acute respiratory infection, coronary heart disease, cardiovascular diseases, cancers, and perinatal disorders (IAKMI, 2014; Kosen et al., 2012; Kristina et al., 2015). In 2013, healthy years lost at the population level due to smoking-induced diseases was estimated to be 6.2 million in disability-adjusted life years, or DALY (IAKMI, 2014). Nearly half of smokers die from their addiction, and approximately half of these deaths occur during prime working years before retirement (35 to 69 years) resulting in at least 10 to 15 years of life loss. Studies across countries with long-term tobacco consumption consistently demonstrate that the risk of death is high among smokers.

Tobacco use also exacts an economic burden on households as monthly tobacco consumption can reach 11 percent of a household's total spending (National Social Economic Survey, 2015). This implies a loss of earnings, household savings, and investments. Spending on tobacco also constitutes approximately 11 percent of household incomes. For low-income households, limited resources being spent on tobacco reduces spending on healthcare, food, education, and other necessities.

Figure 2. Retail Price per Cigarette and Pack of Cigarettes 2011-2018



Blue: per stick, Red: Per pack

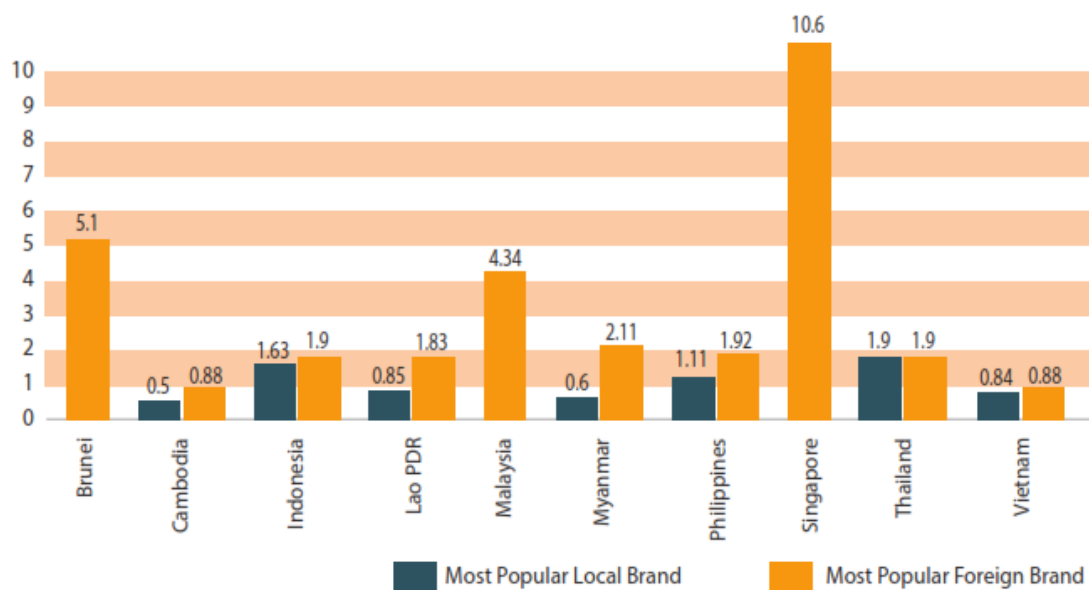
Source: Ministry of Finance, 2019

Lack of government regulation is one of the factors that leads to a high smoking prevalence in Indonesia. Despite the fact that the government increases the price of tobacco every year, cigarette prices are still very low with Indonesia being one of the countries with the cheapest cigarette prices in the region. The average price of cigarettes in Indonesia is Rp16,863 per pack (16 cigarettes). Another factor that drives high cigarette consumption is that every person has access to cigarettes, because they are distributed and sold widely in public spaces. Although the government claims that the

price of cigarettes increases every year because of increasing excise tariffs, cigarettes still remain very affordable.

In comparison to other countries in the Southeast Asian region, the price of cigarettes in Indonesia for both local and foreign brands is low (Figure 3). Indonesia ranks as the country with the fifth lowest cigarette price for the most popular local brand after The Philippines, Vietnam, Laos, and Cambodia. However, for foreign brand cigarette prices, Indonesia ranks third after Vietnam and Cambodia. It has been shown that even the price of foreign brand cigarettes is considerably cheaper in Indonesia.

Figure 3. The Price of Cigarettes for Local and Foreign Brands (in US\$)



Source: SEATCA, 2019

Progress has recently been made to begin reducing tobacco affordability in Indonesia, but much remains to be achieved. Recent tobacco tax reforms in Indonesia have boosted retail cigarette prices. The nominal average cigarette price rose by 65 percent between 2011 and 2016, from IDR 11,578.5 to IDR 19,116.3 per pack. The real average cigarette price climbed by 27 percent, and cigarettes were 10 percent less affordable in 2016 than in 2011 (Ahsan, 2018).

Illicit cigarettes still exist in the Indonesian market. There are two types of illicit trade cigarettes: smuggled and illicitly manufactured tobacco products (Joossens, 2014). Illicitly manufactured cigarettes are circulated and sold without an excise stamp or with a fake excise stamp, otherwise known as domestic tax evasion. Smuggled cigarettes are a leading issue in other countries, such as Laos and Malaysia. However, due to low tax and price, cross border smuggling tends to be very low in Indonesia. Illicit domestic cigarettes are a major concern in Indonesia, because 90 percent of smokers in Indonesia consume *kreteks*, which are cigarettes containing cloves and are only produced domestically in Indonesia (Campaign for Tobacco-Free Kids, 2008). The magnitude of illicit cigarette consumption is difficult to measure due to the clandestine nature of the

activity. The quality of measurement produced by litter surveys, frequently used to estimate the presence of illicit cigarettes, depends on collection site choices and how well the packs recovered at these sites reflect domestic consumption.

A factor that may affect illicit trade in the Indonesian market is the presence of a complex tax system, where the excise tax that is levied depends on the type of cigarette produced, the scale of the producing company, the method of production, and the retail price range for the final product. This tax system confers lower excise tax rates to *kretek* producers over white cigarette producers, to smaller producers over large producers, to producers of hand-rolled *kreteks* over machine-made cigarettes of either type, and to cheaper final products over more expensive products. In turn, these tax preferences have facilitated the proliferation of numerous, small producers. In contrast to the tobacco industry in nearly every other country, Indonesia possesses a few very large companies and the continued existence of hundreds of small producers, some of which are contracted by the large companies (Ahsan, 2014).

Tobacco Industry SCARE (S:Smuggling and Illicit; C: Court and Legal Challenges; A: Anti-poor Rhetoric; R: Revenue Reduction; E: Employment Impact) tactics and misinformation are the key hindrance to increasing tobacco taxes worldwide (This acronym was developed by the World Health Organization's Tobacco Control Economics unit). The first tactic is to build the narrative that increasing the cigarette tax (*cukai rokok*) and price will lead to an increase in the illicit trade of cigarettes, especially in low- and middle-income countries. For instance, a statement from Mufti, Chairman of Gabungan Produsen Rokok Putih Indonesia (Indonesian Light Cigarette Manufacturers Association) in the media claims that a sharp increase in excise tax would lead to illicit cigarettes being circulated back into the market (CNN, 2018). The statement has not yet been proven, as there are no time series data that measure illicit cigarettes annually.

The measurement of the illicit trade of cigarettes is limited in Indonesia. Moreover, one of the studies that measures the magnitude of illicit cigarettes is funded by the tobacco industry. This research aims to fill the gap in previous research that has been done using a transparent methodology and approach.

1.2 Objectives

The objectives of this study are as follows:

1. To measure the magnitude of the illicit cigarette trade in Indonesia from a consumer approach.
2. To determine factors that affect illicit cigarette consumption.
3. To analyze the possibility of increasing cigarette prices and the impact on the illicit cigarette trade.
4. To provide a transparent methodology.

II

Literature Review



2. LITERATURE REVIEW

2.1 The Political Economic Context of Illicit Cigarettes in Indonesia

Unbiased information and recommendations should be provided to support the economic growth of a country and the ruling power in politics or the government should weigh this economic information and make decisions in the interest of economic development. Walter (2011) states that politics should not interfere in economic strategy because of its corrupting effect and hampering of the goals. Furthermore, he argues that the task of economics is to provide a neutral counsellor on how policy can achieve concrete interests (Walter, 2011).

However, in practice, economics and politics are inseparable and intertwined strongly with one another. Economic discourse is one of the key political battlegrounds and economic issues are inherently political. Politicians see economics through the lens of political power to gain support from the most powerful actors, such as business people or the private sector more broadly. It is not surprising that policies have become more in their favor, for example by introducing tax cuts, and rejecting the increase of excise tax, among others. In this position, Walter (2011) states that in the perspective of the Habermasian, “the fundamental assumption about the relationship between politics and economics, is that politics has a specific and distinguishing function that is compromised by an over-reaching economic science”.

In Indonesia, economics and politics are two sides of the same coin. Aspinall (2014) argues that political patronage and corruption have become a cycle in the election process of Indonesia. In 2009, Indonesia adopted an open-list system in which every party proposes multiple candidates for the House of Representatives (DPR) to be elected by the people, to win DPR seats within the constituency (Aspinall, 2014). This system has created competition between not only candidates from different parties, but also from the same party. The candidates with the highest total votes on the party list then win the party’s seat. The system has encouraged each candidate to devote their resources to promoting themselves rather than their party (ibid).

Under this system, where the candidates for the DPR run very costly campaigns for themselves to increase their electability, money politics are commonly practiced by the candidates to attain votes (Aspinall 2014). Therefore, campaign financing plays a central role, because a large amount of money is required to win the election. In order to obtain sufficient funds for the campaign, candidates usually build strong relationships with interest groups within the district, especially the business sector (Varkkey, 2012). In

return, the elected candidates support these interest groups with their political power through streamlining or expanding their businesses, for example (ibid). Another way for candidates to support their campaign is by taking out personal loans, many of which are repaid after they are elected by engaging in corruption or receiving bribes by providing what the interest group has asked for (Aspinall, 2014; Varkkey, 2013). In the recent development of political parties, it has been rumored that one of the parties with the most potential, which was initiated by youth groups, has received a significant amount of funds from cigarette companies to support their political campaign (Pinter Politik, 2018).

The lack of legislative and executive willingness for tobacco taxation reform can also be analyzed by looking at how politicians develop narratives about the industry. The tobacco industry has been framed as one of the biggest economic contributors by creating employment and as one of the largest taxpayers. Tobacco taxes accounted for between 4.8 and 7.7 percent of the Indonesian government's total annual revenue between 1998 and 2010 (Rosser, 2014).

Recently, the President of Indonesia, Joko Widodo, signed a presidential regulation (Keppres) allowing the use of the regional tobacco excise duty to help finance the universal healthcare program (BPJS), which has been beset by a growing deficit. This regulation increases the bargaining position of the tobacco industry, evidenced in the decision made by the government that the tobacco excise will not be increased—an announcement made by the Minister of Finance, Sri Mulyani, on 2 November 2018. At the same time, she also explained that the government will refrain from carrying out the previously announced plan to simplify the cigarette excise tiers. Both decisions show that the policies made by the government are strongly influenced by political interests between politicians, both legislative and executive, and the tobacco industry.

In the Asia Pacific Conference On Tobacco Or Health (APACT) in 2018, the Center for Indonesia's Strategic Development Initiatives (CISDI) gave a presentation on interaction patterns among members of the government executives' network and the way they share and construct concepts together. This was captured by CISDI through online media analysis in relation to their statements on tobacco. CISDI (2018) found that parliament members commonly use employment and industry arguments to oppose tobacco tax increases. The same statements have been conveyed by the Ministry of Industry in opposing tax increases. Despite the parliament and several ministers having also stated the illicit trade argument in order to counter the plan to increase the tax, this argument is rarely used (CISDI, 2018).

Furthermore, the narratives of the illicit cigarette trade are mostly used by the industry itself as one of their lobbying tools to control tax policy, both by opposing the size of the tax increase and even preventing the tax increase all together. Mufti, Chairman of

Gabungan Produsen Rokok Putih Indonesia (Indonesian Light Cigarette Manufacturers Association), in the media claims that a sharp increase in excise tax would lead to illicit cigarette circulation back into the market (CNN, 2018). In addition, Soemiran, Chairman of Gabungan Perserikatan Pabrik Rokok Kretek Indonesia (Indonesian Kretek Cigarette Factory Association), argues that increasing the excise tax on cigarettes could potentially increase the magnitude of the illicit cigarette trade by increasing the price of cigarettes above consumers' purchasing power. Therefore, illicit cigarettes would disrupt the cigarette industry and reduce government revenue (Merdeka, 2018). Despite the fact that the claim made by the cigarette industry has not been proven, the relationship between tax and illicit cigarettes is still up for debate since empirical evidence related to this issue is lacking.

Ross (2015) states that the effect of a tax increase in terms of tobacco use and tax revenue is a matter of empirical evidence, as it is influenced by the price elasticity of demand for tobacco, the cross-price elasticity for full-tax and low-tax products, and their new full prices. In addition, some research has proven that several factors, such as government enforcement, corruption, and institutional collaboration, cannot be neglected in reducing illicit cigarette trade. Some existing empirical evidence has shown that tax increases do not trigger illicit cigarettes as much as the industry claims. Ajmal and Ian (2015) found that raising taxes has had a minimal impact on encouraging the production of illicit tobacco in New Zealand. Iglesias, et al. (2015) found that tax and price increases have reduced smoking prevalence in Brazil, and that while the proportion of illicit daily consumption has increased, this is due to the lack of institutional and law enforcement barriers against smuggling flows. Merriman and Chernick (2011) estimated that tax increases have reduced smoking consumption more than it has increased tax avoidance in New York.

2.2 Previous Studies on Illicit Cigarettes in Indonesia

The media in Indonesia often covers the issue of illicit cigarette trade, usually informed by the number of criminal cases in official government inspections that may simply reflect greater enforcement. Unfortunately, these inspections cannot be used to explain the magnitude of illicit cigarette consumption. Comprehensive and transparent studies that have measured the magnitude of the illicit cigarette trade in Indonesia are also limited. Moreover, such studies have only just started to emerge in recent years. To the best of our knowledge, only three sources have analyzed illicit trade in Indonesia: Ahsan et al. (2014); Universitas Gadjah Mada, et al. (2016 and 2018); and Oxford Economics (2017 and 2018).

Ahsan, et al. (2014) measured the size of illicit cigarette consumption in Indonesia through two different approaches. Survey-based estimates of consumption were compared to cigarette sales through what is known as the gap method, and Indonesian

cigarette imports were compared to cigarette exports to Indonesia recorded by trade partners. The researchers relied on the National Socio-Economic Survey from 1995 and 2004; the Household Health Survey from 2001; the Basic Health Research Survey from 2007, 2010, and 2013; and the Global Adult Tobacco Survey (GATS) from 2011. Based on a 1995-2013 data-set compilation, they estimated that the extent of illicit cigarettes in Indonesia was around 8-17 percent of the total annual cigarette consumption. In addition, smuggling was considered a relatively small source of illicit cigarettes in Indonesia. Importantly, they found that the emergence of illicit cigarettes is positively correlated with smoking prevalence, intensity, and the population of Indonesia.

Universitas Gadjah Mada (2016) estimated the presence of illicit cigarettes in Indonesia at 12.1 percent in 2014. This study used forensic analysis of newly-purchased cigarette packets from wholesale, large, and small retail sellers in 73 regencies/cities consisting of 17 regencies/cities with high level consumption, 38 regencies/cities with medium level consumption, and 18 regencies/cities with low level consumption. The identification of illicit cigarettes was based on excise stamp violations in a sample of cigarette packets that did not comply with the national standard issued by the Ministry of Finance. Using the same methodology, the study revealed that the incidence of illicit cigarettes dropped substantially to 7 percent in 2017, as found by Universitas Gadjah Mada, et al. (2018). Unfortunately, there is no information about the sampling size. Furthermore, the study did not report the incidence rate of illicit cigarettes from consumers.

Oxford Economics (2017) estimated the illegal cigarette consumption rate by using an empty pack survey methodology for non-domestic illicit cigarette estimation in which illicit cigarettes were identified by an incorrect, used, or counterfeit excise tax stamp, but relied only on the findings from Universitas Gadjah Mada for domestic illicit cigarette estimation. For the empty pack survey, the study used 10,000 sample packs that were taken from the 45 largest cities in Indonesia. This study estimated that around 286.8 of 326.8 billion cigarettes were legal. In other words, illicit cigarette consumption in Indonesia in 2016 was about 12.2 percent or equivalent to 39.7 billion cigarettes. In addition, Oxford Economics (2018) indicated that illicit cigarette consumption in Indonesia significantly decreased to 9.7 percent in 2017. It should be noted that the Oxford Economics research on illicit trade is funded by tobacco multinationals and that their work has been severely criticized. Ross (2015) noted that the methodological approaches are weak and that a lack of sufficient detail does not permit assessment and replication of the results. Furthermore, significant questions with regards to sampling are raised and the published research provides few details. Finally, in the part of the research that using empty pack surveys, the criteria for determining a pack's origin is unknown.

There are various methods to estimate the extent of illicit cigarettes. According to a survey of tobacco users conducted by Ross (2015), the examination of cigarette packs,

gap analysis, and econometric modelling are the most frequently used methods in the study of illicit cigarettes. Surveying tobacco users is a method in which information from tobacco packs is collected via surveys from tobacco users and/or by inspecting tobacco users' packs. Examination of cigarette packs is an approach that classifies whether packs are illicit by the laws and regulations applicable to the jurisdiction where they are found. Meanwhile, gap analysis is a technique used to estimate the number of illicit cigarettes based on the difference between estimated consumption and tax-paid sales. Econometric modelling is a tool to estimate the size of the illicit cigarette trade given estimated demand functions using regression analysis.

In this study, we chose to survey tobacco users, combined with the examination of cigarette packs. The survey has advantages in that we could obtain information from respondents in customizable ways (for example: the background and consuming behavior of consumers). However, the survey relies on self-reported data, which may cause validity problems especially regarding essential information that is contained on the packs. Therefore, we combined the survey method with examination of the cigarette packs to eliminate validity problems. We also observed that these methods have not been used together previously in Indonesian studies, as Ahsan (2014) used a gap analysis, Oxford Economics (2017) conducted littered pack collection, and Universitas Gadjah Mada (2016) used a survey of newly-purchased cigarette packs from wholesale, large, and small retail sellers. Furthermore, a gap analysis that contains trade discrepancies is not useful in Indonesia, as smuggling should not be a problem given that most Indonesian consumers prefer domestically produced *kreteks*. The drawback of a littered pack collection is that it does not tell us enough about the packs, while the survey of newly purchased cigarette packs may not capture very well the real conditions of illicit consumption in the hands of tobacco users.

Many empirical studies have examined the illicit cigarette trade outside Indonesia using survey and examination methods. Joossens, et al. (2014) examined the number of illicit cigarettes plus hand-rolled tobacco using a face-to-face survey methodology in 18 European countries. By surveying approximately 1,000 participants in each country, the results indicated that the proportion of illicit packs was 6.5 percent. However, the results among different countries were very diverse. The smallest percentage of illicit cigarettes was in Portugal with almost zero percent of illicit cigarettes, and the highest percentage was in Latvia with 37.8 percent. The explanation for this discrepancy was that illicit trade is not directly related to tobacco prices, but related to the ease and cost of operating in a country, industry participation, how well crime networks are organized, the likelihood of being caught, the punishment if caught, and the level of corruption.

Stoklosa and Ross (2013) complemented the face-to-face survey methodology by employing data collection of packs discarded on streets to calculate the size of the illicit cigarette market in Poland. Their study used 400 samples for survey data and 754 for

discarded pack data. In order to measure the size of the illicit cigarette market, their study referred to the official excise stamp and health warnings. Their study revealed that both methods were not statistically different. Using face-to-face survey data, the estimate of the illicit cigarette trade was about 14.6 percent and using the discarded pack method the estimate was about 15.6 percent.

Nagelhout, et al. (2014) assessed socioeconomic and country variations in cross-border cigarette purchasing using a survey method in which respondents were asked whether they had bought cigarettes outside of their country in the last six months and how often. This study used a self-reporting approach and was conducted in only six countries in Europe. This study had a sample of 7,873 adult smokers from the International Tobacco Control (ITC) Survey in France (2006/2007), Germany (2007), Ireland (2006), the Netherlands (2008), Scotland (2006) and the UK (2007/2008). This study concluded that cross-border cigarette purchasing is more common in European regions bordering countries with lower cigarette prices, and is more often reported by smokers with a higher education and income. Increasing taxes in countries with lower cigarette prices, and reducing the number of cigarettes that can be legally imported across borders could help to avoid cross-border purchasing.

Guindon, et al. (2014) estimated the levels and trends in cigarette users' tax avoidance and tax evasion behavior by using self-reported information about the source of a smoker's last purchase of cigarettes and self-reported packaging information gathered by the interviewers. In addition, this study explored factors associated with cigarette tax avoidance and evasion by using generalized estimation equations to explore individual-level factors that may affect the likelihood of cigarette tax avoidance or evasion. This study used survey data in a sample of 16 low-, middle- and high-income countries and across time. The findings showed that tax avoidance/evasion varies substantially between countries and across time. This study also found a negative relationship between household income and education, and the likelihood to engage in tax avoidance/evasion. However, these associations varied both in direction and magnitude across countries.

III

Research Methodology



3. RESEARCH METHODOLOGY

3.1 Design and Methodology

This study uses individual primary data from a face-to-face survey methodology. We chose this method, because it can be used to collect information in a direct way and analyze consumers' purchasing and consuming behaviors. This method also has good estimations compared to the littered pack method, which lacks sample representation when data is collected in a limited geographical area, and the sample may also be disrupted by commuting patterns and tourists. The study uses a sample of 1,440 respondents from six provinces (Lampung, Banten, West Java, Central Java, East Java, and South Sulawesi). These provinces are a representation of the different geographic characteristics relative to population density in Indonesia. The survey was conducted by 30 trained enumerators in July 2018. The respondents were active smokers at the time and had been consuming cigarettes over the last 30 days. In this study, the scope of current active smokers was limited to adults, aged between 18 and 65 years old.

In an attempt to estimate the magnitude of illicit cigarettes specifically, we used both a pack inspection and price paid approach. The smokers were asked to show their last purchased pack of cigarettes that they had on hand. We collected and inspected the packs of cigarettes to examine whether the pack was legitimate. After that, we checked how much they had paid for the cigarettes. Differing from common studies, we not only focused on estimating the magnitude of the illicit cigarette trade, but we also expanded our study to observe the background and behaviors of smokers in relation to the consumption of cigarettes. We believe that examining these aspects allowed us to deepen our understanding of the patterns of Indonesian smoker's consumption.

In this study, we surveyed smokers regardless of the way they consumed cigarettes, both through packs and retail (consumption of pre-made cigarettes and hand-rolled tobacco). We collected data on socio-demographic characteristics, such as geography, income, occupation, education, and marital status. We then observed the number of cigarettes that respondents consumed both currently (when survey took place) as well as habitually. We also investigated frequency of consumption, frequency of buying, place of buying, and type of cigarette. Furthermore, we explored the experience and knowledge of smokers in relation to illicit cigarettes. Finally, we conducted a price simulation to examine the response of smokers to a significant increase in the price of cigarettes.

3.2 Sampling Methods

We employed a multi-stage sampling method to gather the sample. Multi-stage sampling is a form of cluster sampling in which clusters are further broken down by taking samples from a cluster (McBurney and White, 2009, p. 262). Breaking down the clusters is performed in several stages, and the sample size is reduced at each stage. By dividing large populations into several stages, the sampling process is easier to implement. The multi-stage sampling method was employed, because it is an effective and efficient way to collect data from geographically dispersed populations when a face-to-face survey is required. In this study, we built three steps to obtain individual data.

Details of the three steps are as follows:

1. Selection of geographical area.

We first selected the province followed by the district. The selection process was performed by purposive sampling based on the following criteria: (1) population of males aged 18 years or above; (2) population and prevalence of males aged 18 years or above who smoke; and (3) geographical representation, considering representation of Java, Sumatera, and the Eastern region of Indonesia. In selecting points 1 and 2, we chose the area that had the largest population and prevalence relative to other regions. Based on those criteria and referring to National Socio-economic Survey data collected by the National Bureau of Statistics, we chose six representative provinces: Lampung, Banten, West Java, Central Java, East Java, and South Sulawesi. Table 1 shows a statistical summary of the specified provinces.

Table 1. Population and Smoker Population of Males 18+ based on Selected Provinces

No.	Province	Population of Males 18+	Smoker Population of Males 18+	Percentage of Smoker Population of Males 18+
1.	Lampung	3,588,220	2,477,643	69.0%
2.	West Java	20,954,486	14,152,605	67.5%
3.	Central Java	16,672,066	9,611,221	57.6%
4.	East Java	19,245,579	11,521,756	59.9%
5.	Banten	5,412,674	3,542,110	65.4%
6.	South Sulawesi	3,946,447	2,144,934	54.4%
	Total	69,819,472	43,450,269	62.2%

These six provinces represent 58.3 percent of the male population aged 18 or above, and 59.7 percent of male smokers aged 18 or above in Indonesia. From each of the six provinces, one district was selected purposively by considering the largest population of

males aged 18 or above and population and prevalence of males aged 18 or above who smoke. Accordingly, the selected districts can be seen in Table 2. Each selected district consists of 240 respondents.

Table 2. Population and Smoker Population of Males 18+ based on Selected Districts

No	Province	District	Population of Males 18+	Smoker Population of Males 18+	Percentage of Smoker Population of Males 18+
1	Lampung	South Lampung Regency	428,916	291,755	68.0%
2	West Java	Bandung Regency	1,495,664	1,070,172	71.6%
3	Central Java	Banyumas Regency	779,585	490,535	62.9%
4	East Java	Malang Regency	1,243,473	792,205	63.7%
5	Banten	Tangerang Regency	1,515,296	1,035,065	68.3%
6	South Sulawesi	Gowa Regency	320,652	189,354	59.1%

2. Selection of smallest sample

In the selected districts, selection of the smallest sampling unit was performed in three top-down stages:

- 1) Selection of sub-districts
- 2) Selection of villages
- 3) Selection of smallest sampling unit (PSU equal to *Rukun Tetangga/Rukun Warga*)

The selection of sub-districts and villages was carried out using systematic random sampling based on the population size of each village or sub-district as a weight when making random selections. The population in each regency was stratified based on the urban or rural status of the village. The selection of villages and sub-districts also took into consideration the proportional representation of urban or rural villages.

3. Selection of residences and respondents who would be interviewed

Selection of each respondent in a residence was based on age group. We divided the population into age groups of 18-29 years old, 30-44 years old, and 45-64 years old. We then implemented a quota system, in which each age group had a maximum limit of respondents. Any male household members aged 18-64 who still met the quota target were eligible to be respondents.

3.3 Illicit Cigarette Identification

In order to measure the extent of illicit cigarette consumption, we employed an illicit pack identification method. We measured the magnitude of illicit cigarettes based on information objectively collected from the packs compared to benchmark criteria of an illicit cigarette pack (described below). In this study, the packs were validated based on two main criteria: the legitimacy of the excise stamp and the pictorial health warning. In our opinion, those criteria are sufficient to identify the legitimacy of a cigarette pack. Although price could be used as a criterion to identify illicit cigarette packs, this is difficult to apply in the case of Indonesia. Price could be used if the price paid is less than the tax that should be paid on that pack. In Indonesia, however, the difference between price paid and the tax that should be paid for a cigarette pack may be very small. Furthermore, the price difference between the most popular pack and the cheapest pack is quite large and even the lowest-priced cigarette packs could be legitimate. Therefore, we decided to not use the price criterion in illicit cigarette identification in order to avoid misleading conclusions.

The observation of active smokers was focused on the consumers who had cigarette packs during the survey. We excluded those who claimed to be active smokers, but who did not have a pack during the survey or were not consuming retail cigarettes, either pre-made or per gram when the survey took place. The reason for this was that the physical presence of the pack was necessary to identify whether the cigarettes were illicit or not. To date, no studies have assessed the legitimacy of cigarettes by observing the individual cigarettes. Thus, we only validated respondents who at least possessed a pack of cigarettes. However, we still reported how many smokers consume cigarettes, both by the pack or in individual cigarettes or per gram.

We set the benchmark criteria in order to identify illicit cigarette packs. The benchmark criteria refers to the national standard of cigarette excise tax stamp provided by the Directorate General of Customs and Excise under the Ministry of Finance of the Republic of Indonesia, and the pictorial health warnings provided by the Directorate General of Disease Prevention and Control under the Ministry of Health of the Republic of Indonesia. Given our references, the benchmark criteria for illicit cigarette packs in this study were as follows:

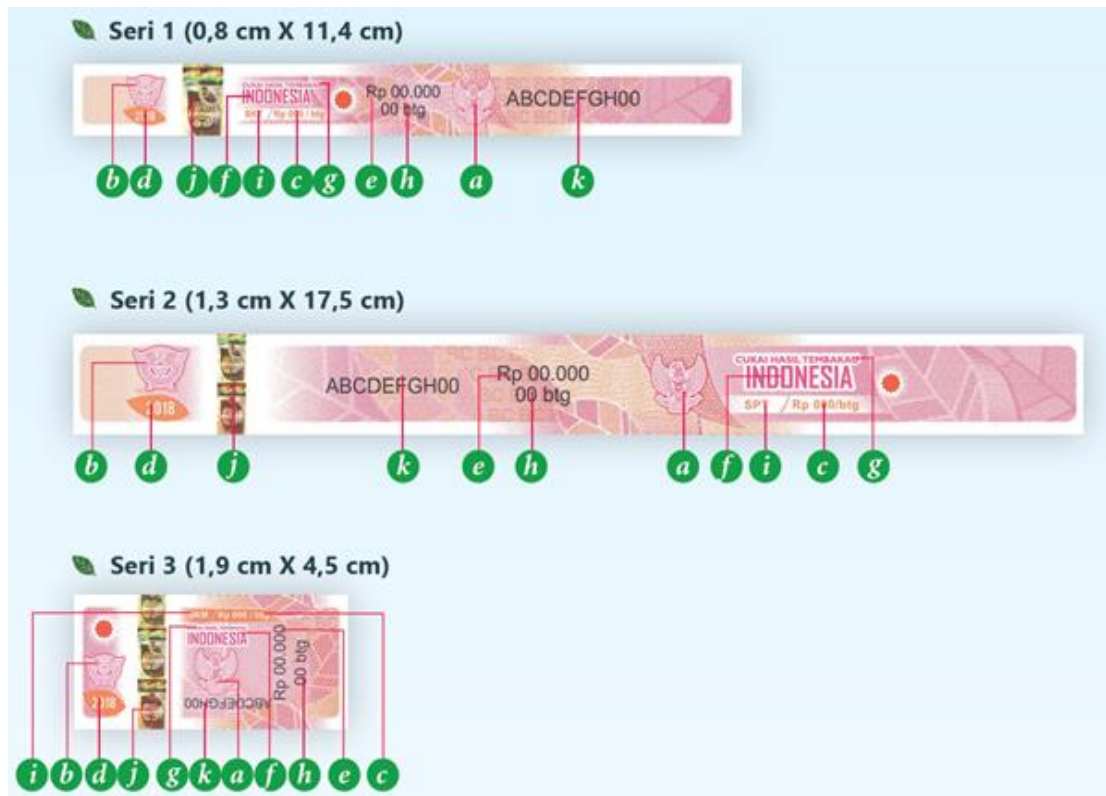
1. Missing excise tax stamp
2. Missing pictorial health warning
3. Inappropriate excise tax stamp
4. Inappropriate pictorial health warning

Packs with at least one of the four criteria were classified as illicit cigarettes.

An inappropriate excise tax stamp means that important features on the stamp, such as the national symbol (Garuda), Directorate General of Customs and Excise logo, excise

tax tariff, number of cigarettes, minimum retail price per pack, and hologram, do not comply with the national standard. If one or more important features was incorrect or doubtful, we then concluded that the pack had an inappropriate excise tax stamp. Moreover, to strengthen our conclusion, we employed an Ultra Violet (UV) Light Detector, because legitimate excise tax stamps have security that is visible only in UV Light. Graphically, legitimate stamps can be determined as follows:

Figure 4. The Legitimate Excise Tax Stamp on Cigarette Pack with Naked Eye

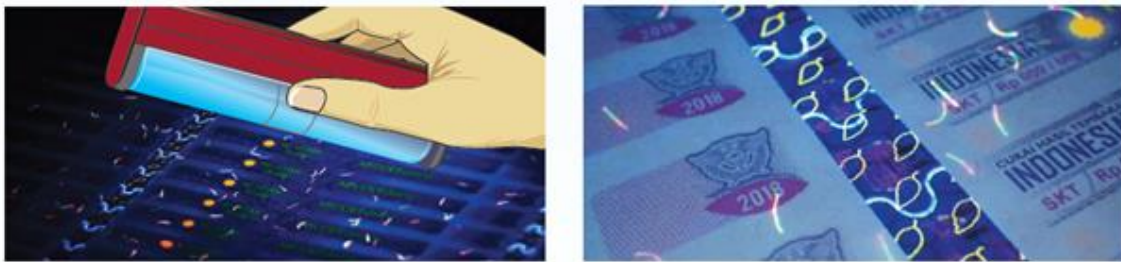


Source: Directorate General of Excise and Customs, Ministry of Finance of the Republic of Indonesia, 2018

Notes:

- a) National symbol
- b) Logo of Directorate General of Customs and Excise
- c) Excise tax tariff
- d) Number of budget year
- e) Minimum per pack retail price
- f) "INDONESIA" text
- g) "CUKAI HASIL TEMBAKAU" text
- h) Number of individual cigarettes
- i) Type of tobacco product
- j) Hologram
- k) Personalization

Figure 5. The Legitimate Excise Tax Stamp on a Cigarette Pack with UV Light



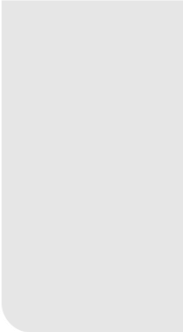
Source: Directorate General of Excise and Customs, Ministry of Finance of the Republic of Indonesia, 2018

An inappropriate pictorial health warning is where the picture size is less than 40 percent of the main cover, and the picture does not contain one of the four official pictorial health warnings provided by the government. If the pack did not contain the official pictorial health warning and the size did not meet the regulation, we decisively concluded that the pack had an inappropriate pictorial health warning. Visually, legitimate pictorial health warnings can be determined as follows:

Figure 6. Legitimate Pictorial Health Warnings



Source: Directorate General of Disease Prevention and Control, Ministry of Health of the Republic of Indonesia, 2018



IV

Analysis



4. ANALYSIS

4.1 The Magnitude and Demand of Illicit Cigarettes

We successfully collected data from 1,440 respondents who were current active smokers and had been consuming cigarettes over the last 30 days. Based on the survey, the number of respondents who had been smoking packs of cigarettes was 1,201 and the number who had been smoking individual cigarettes was 239. Around 83 percent of the respondents purchased cigarettes in packs, and around 17 percent of the respondents purchased individual cigarettes. We estimate that the magnitude of illicit cigarettes in the 6 districts was less than 2 percent or 20 respondents who purchased cigarettes in packs. This number comes from 1,201 packs that were collected from the respondents who had been purchasing cigarettes in packs.

Table 3 shows the profiles of the respondents who were surveyed by enumerators based on age, gender, education, and income. All respondents were adult smokers, as our study excluded youth smokers. Almost 100 percent of respondents were male, and 27.84 percent were in the age range of 28-37 years old. Most of them had graduated from Senior High School, with the second highest group having graduated from Junior High School. Only 6.18 percent of the respondents had graduated from college. More than half of the respondents had an income between 50,000-2,000,000 IDR, and the second highest ranking income was between 2,000,000-4,000,000 IDR.

Table 3. Profile of Respondents Based on Age, Gender, Education and Income

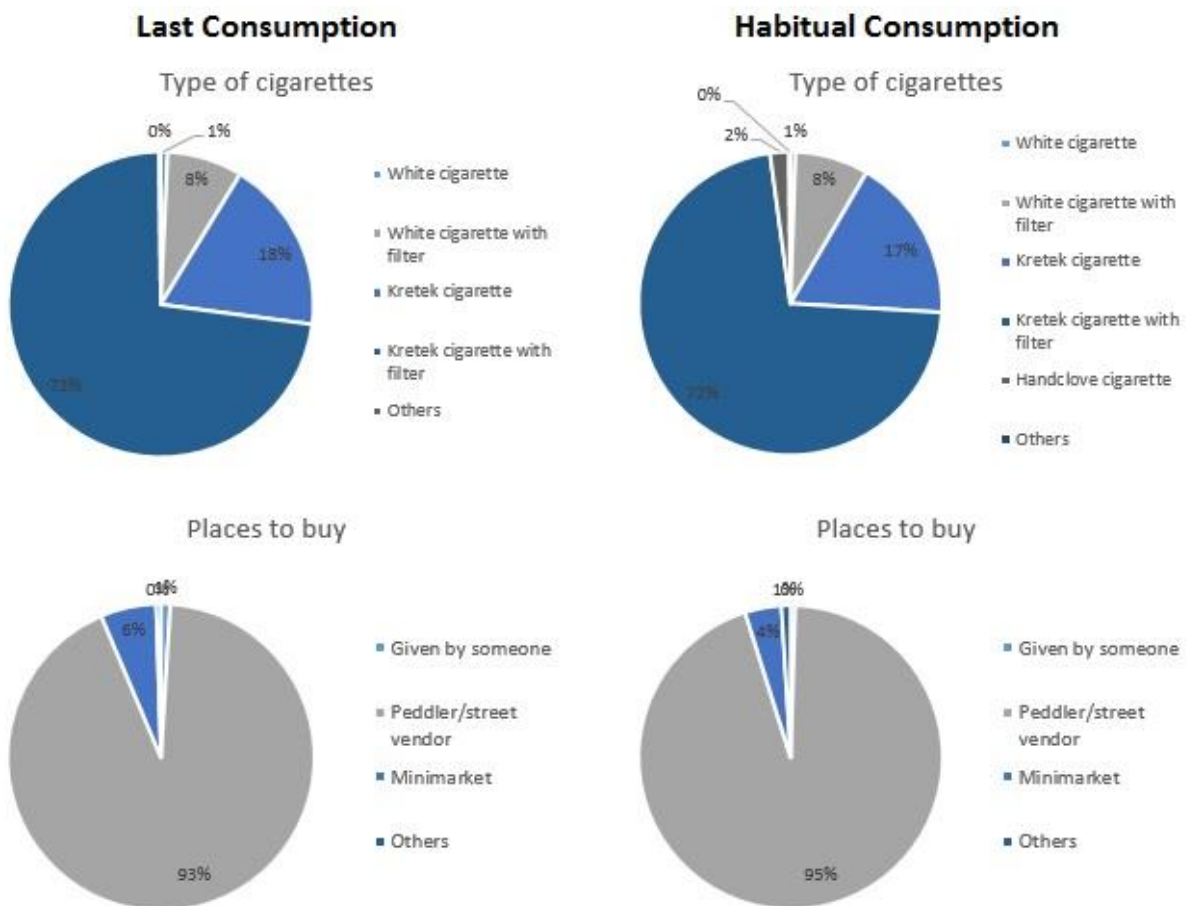
Age	%	Gender	%	Education	%	Income	%
18-27	24.31	Male	99.24	Under Primary School	6.88	IDR 50.000-2.000.000	58.32
28-37	27.84			Primary School	21.81	IDR 2.000.001-4.000.000	34.34
38-47	24.23			Junior High School	22.92	IDR 4.000.001-6.000.000	5.57
48-57	14.78	Female	0.76	Senior High School	42.22	IDR 6.000.001-8.000.000	0.84
58-67	8.33			College	6.18	IDR 8.000.001-10.000.000	0.28
>68	0.49					>IDR10.000.000	0.77

In this study, consumer behaviors were captured twice in terms of last consumption and habitual consumption. The purpose of this measurement was to ensure whether the last consumption pattern from when the respondent was surveyed was the same as their habitual pattern of smoking. The data in Figure 7 explain that the patterns of the respondents were similar for both the last and habitual consumption. The first similarity shows that consumers buy cigarettes in a pattern of habitual consumption. This pattern is explained in the graph below. The second similarity is the type of cigarettes that are

being smoked by consumers. Differences in answers between last and habitual consumption only count for 1 percent.

From Figure 7, it is evident that most of the respondents bought cigarettes from peddlers/street vendors, with only few buying from minimarkets. This trend is not surprising, as 15 percent of the respondents bought individual cigarettes, including raw tobacco. The geographical area of the survey also affected the characteristics of the respondents' cigarette buying. Because the area of the survey was located in the district, there are less minimarkets than in the city. In regard to the type of cigarettes being consumed, *kretek* cigarettes with filters were the most popular cigarettes consumed compared to the other types of cigarettes, which included *kretek* cigarettes, white cigarettes with filters, and hand-rolled clove cigarettes.

Figure 7. Last Consumption versus Habitual Consumption



Source: PRAKARSA calculation

Based on illicit cigarette identification criteria (attributes set by the Directorate General of Customs and Excise under the Ministry of Finance), illicit cigarettes in Indonesia are defined by several criteria that involve not only a tax stamp, but also a pictorial health warning, as explained in Section 3.3. Shown in the table of illicit cigarette identification criteria (see Table 4), 20 packs of illicit cigarettes were identified by missing tax stamps.

Only 7 of the 20 packs with a missing tax stamp also had a missing pictorial health warning. However, we did not find any cigarette packs that had an inappropriate tax stamp or an inappropriate pictorial health warning. In addition, we found 1,141 licit packs with a 2018 tax stamp and pictorial health warning, 18 licit packs with a 2017 tax stamp and pictorial health warning, and 22 licit packs with a damaged tax stamp and pictorial health warning.

Table 4. Results by Illicit Identification Criteria

Illicit Cigarette Identification Criteria	Number
Legal packs with 2018 tax stamp and pictorial health warning	1,141
Legal packs with 2017 tax stamp and pictorial health warning	18
Legal packs with damaged tax stamp and pictorial health warning	22
Missing tax stamp	20
Missing pictorial health warning	7
Inappropriate tax stamp	0
Inappropriate pictorial health warning	0
Total packs collected	1,201
Total legal packs	1,181
Total illicit packs	20
Surveys completed by no packs	239
Total surveys	1,440

The analysis of the characteristics of illicit tobacco users should be made cautiously due to the small number of illicit packs found in this survey. From the consumer side, Table 5 explains that most of the respondents who smoke illicit cigarettes had a Junior High School education. However, there were also smokers with a college education who also consumed illicit cigarettes instead of licit cigarettes. Therefore, education background did not necessarily predict whether a respondent smoked illicit cigarettes. Another factor that correlated to predicting whether a smoker consumed illicit cigarettes was financial situation.

Table 5. Illicit and Licit Cigarette Consumers Based on Educational Background and Average Expenditure

Classification	Education					Average Income (Rp)
	Elementary School (not finished)	Elementary School	JHS	SHS	College	
Illicit	1.2%	1.1%	2.2%	1.7%	1.2%	2,312,500
Licit	98.8%	98.9%	97.8%	98.3%	98.8%	2,419,394

Note: JHS=Junior High School; SHS=Senior High School

4.2 Factors That Correlate With Illicit Cigarette Consumption

Income and Price Effects

The fact that cigarettes are taxed was common knowledge to the respondents. Out of 1,440 respondents, around 80 percent were aware of the tax (see Table 6). Based on level of education, most respondents who were unaware that a tax is imposed on cigarettes had not graduated from elementary school. Meanwhile, most respondents who had graduated from elementary school and up to college were aware that a tax is imposed on cigarettes. From the data collected, it would be reasonable to conclude that the higher a respondent's level of education, the more likely it is that they are aware that a cigarette tax is imposed on cigarettes.

Table 6. Tax Salience based on Level of Education

Level of Education	Aware that cigarette tax is imposed on cigarettes				Total	
	Yes		No			
Has not graduated from Elementary School	46	3.2%	53	3.7%	99	6.9%
Elementary School	219	15.2%	95	6.6%	314	21.8%
Junior High School	265	18.4%	65	4.5%	330	22.9%
Senior High School	532	36.9%	76	5.3%	608	42.2%
College	88	6.1%	1	0.1%	89	6.2%
Total	1,150	79.9%	290	20.1%	1,440	100.0%

Even though most respondents were aware of the tax, most were unaware that illicit cigarettes exist. This is shown in Table 7 listing respondents' awareness of non-taxed, illicit cigarettes, which was only about 20 percent (293 respondents) of the total number of respondents. This indicates that the presence of illicit cigarettes in the market is extremely limited.

Table 7. Awareness of Illicit Cigarette

Awareness of illicit cigarettes	Respondents	Percentage
Yes	293	20.4%
No	442	30.7%
Don't know	699	48.5%
Did not answer	6	42%
Total	1,440	100%

As the number of illicit cigarettes is limited, Table 8 shows that not many respondents had smoked illicit cigarettes, amounting to just 20 percent (283) of all respondents. The correlation between respondents who were aware of illicit cigarettes and respondents who had smoked illicit cigarettes strongly indicates that they were the same respondents, with both groups amounting to 20 percent of the total number of respondents.

A further look into the findings of this survey shows that there are respondents, albeit only several, who were aware of the existence of illicit cigarettes (293 respondents) but had never consumed them (10 respondents). Though meager, this shows that not all respondents who were aware of illicit cigarettes were interested in smoking them.

Table 8. Experience in Smoking Illicit Cigarettes

Have smoked illicit cigarette	Respondents	Percentage
Yes	283	19.7%
No	766	53.2%
Don't know	381	26.5%
Did not answer	10	69.0%
Total	1,440	100%

Another interesting finding from the survey is that when the respondents were asked to state the reason(s) why they would buy illicit cigarettes, only 2 percent (20 respondents) answered (see Table 9). Of those 20 respondents, most specified lower price as the main reason (85 percent) for buying illicit cigarettes. This finding proves to be quite interesting, because only a handful of respondents gave an answer to this question. Out of the 283 respondents who had admitted to having smoked illicit cigarettes, only 20 of them gave a reason for why they would buy illicit cigarettes. Again, we should be cautious of this result due to the small sample.

Table 9. Reason for Buying Illicit Cigarettes

Reason for buying illicit cigarettes	Respondents	Percentage
Brand	1	5%
Price	17	85%
Taste	2	10%
Others	0	0%
Total	20	100%

This finding may be interpreted as the fact that respondents who had smoked illicit cigarettes (283 respondents) may not buy or consume them on a regular basis. This finding may also indicate that most respondents who had smoked illicit cigarettes received them from another person and did not buy the cigarettes themselves. From those who bought illicit cigarettes themselves, it may be deduced that the lower price was the main reason for buying illicit cigarettes.

Out of the respondents who had smoked illicit cigarettes, more than half (63 percent) had an income equal to or less than Rp2 million per month (see Table 12). A more in-depth look shows that almost 45 percent of the respondents who had smoked illicit cigarettes are those with an income equal to or less than Rp1.5 million per month. The finding also shows that, in general, the higher the participant's income, the less likely they were to smoke illicit cigarettes.

Table 10. Illicit Cigarette Smokers by Income

Income/month of respondents who have smoked illicit cigarettes	Respondents	Percentage
≤ Rp 1,500,000	126	44.5%
Rp 1,500,100 – Rp 2,000,000	53	18.7%
Rp 2,000,100 – Rp 2,500,000	26	9.2%
Rp 2,500,100 – Rp 3,000,000	37	13.1%
Rp 3,000,100 – Rp 3,500,000	10	3.5%
Rp 3,500,100 – Rp 4,000,000	17	6.0%
Rp 4,000,100 – Rp 5,000,000	9	3.2%
Rp 5,000,100 ≤	5	1.8%
Total	283	100%

It may be concluded from this finding that financial factors play a large part in the consumption of illicit cigarettes. The lower the respondent's income, the more likely they were to smoke illicit cigarettes. This trend correlates with the finding that the main reason why respondents bought illicit cigarettes was price. Consideration of the brand and taste of the cigarettes, which is usually the main consideration for cigarette smokers, was much less relevant. Rather than not smoking at all, active smokers with low incomes would rather buy illicit cigarettes, which are cheaper. Despite this, the

number of respondents who actually bought illicit cigarettes was fairly low, at only 2 percent (20 respondents) of the total number of respondents (1,201 respondents).

Geographical Factors

In addition to the respondent's level of income and the price of cigarettes, which were both key factors, accessibility was also a considerable factor in the consumption of illicit cigarettes. Table 11 shows that the Regency of Banyumas and the Regency of Malang had the largest number of respondents who smoked illicit cigarettes. The number of respondents who had consumed illicit cigarettes in these regions was 2 to 3 times more than in South Lampung and Tangerang.

Table 11. Illicit Cigarette Smokers by Geographical Area

Have smoked illicit cigarettes	Regency						Total
	Bandung	Banyumas	Gowa	South Lampung	Malang	Tangerang	
Yes	42	74	45	24	68	30	283
No	96	144	101	156	133	136	766
No information	100	20	94	54	39	74	381
Did not answer	2	2	0	6	0	0	10
Total	240	240	240	240	240	240	1,440

This is confirmed by the fact that respondents from the Regency of Banyumas and the Regency of Malang were the most aware of the existence of illicit cigarettes (see Table 12). Additionally, illicit cigarettes were found to be more accessible in these regions compared to the others.

Table 12. Awareness of the Existence of Illicit Cigarette by Geographical Area

Awareness of the existence of illicit cigarettes	Regency						Total
	Bandung	Banyumas	Gowa	South Lampung	Malang	Tangerang	
Aware	30	67	32	47	98	19	293
Not Aware	50	104	61	51	80	96	442
No information	159	67	147	141	60	125	699
Did not answer	1	2	0	1	2	0	6
Total	240	240	240	240	240	240	1,440

The Regency of Malang had the greatest number of respondents who bought illicit cigarettes, followed by the Regency of Banyumas and the Regency of South Lampung (see Table 13).

Table 13. Reason for Buying Illicit Cigarettes by Geographical Area

Reasons for buying illicit cigarettes	Regency						Total
	Bandung	Banyumas	Gowa	South Lampung	Malang	Tangerang	
Brand	0	0	0	0	1	0	1
Price	0	1	0	0	16	0	17
Taste	0	0	0	1	1	0	2
Total	0	1	0	1	18	0	20

Based on the findings, the Regency of Malang had the largest number of illicit cigarette purchases and the most awareness of the existence of illicit cigarettes. This finding is unsurprising, considering that the Regency of Malang is home to the cigarette manufacturer Bentoel, along with approximately 29 other smaller cigarette manufacturers. The Regency of Malang is also fairly close to Kediri, which is home to the manufacturer of Gudang Garam cigarettes along with six other smaller cigarette manufacturers (Gudang Beras, Kanigoro Jaya Sentosa, Semanggi Mas Agung,

Semanggimas Sejahtera, and Sinar Wijaya Rokok). Furthermore, the Regency of Malang is located near the center of tobacco plantations, Jember.

Figure 8. The Surveyed Area with The Highest Consumption of Illicit Cigarettes



The locations where illicit cigarettes are available correlated to the locations of tobacco plantations and cigarette factories. With better chances of having low-grade, low-quality tobacco from cigarette factories or easier and cheaper access to tobacco plantations, locations near tobacco plantations and cigarette factories are favorable for the production of illicit cigarettes. This will prove to be valuable information for Customs and Excise authorities trying to prohibit the sale of illicit cigarettes. Efforts should be expended first on tobacco-producing and manufacturing regions. This effort will save resources and create a more focused and effective method of prohibiting the sale of illicit cigarettes.

Although 283 respondents had consumed untaxed cigarettes, the majority of smokers purchased cigarettes daily in packs, and once per month as a minimum (single purchase at the very least). However, only 20 respondents had purchased illegal cigarettes in the past 30 days. This illustrates that the majority of smokers who had consumed illegal cigarettes (90 percent) were not active consumers of illegal cigarettes. This can be seen in Table 14 and Table 15.

Table 14. Frequency of Cigarette Purchases in Packs by Smokers

Frequency of purchase per pack	Have consumed untaxed cigarettes				Total
	Have Consumed	Have Not Consumed	Not Aware	Refuse to Answer	
Everyday	184	513	201	5	903
Almost everyday	48	162	86	3	299
Every week	26	35	27	1	89
Every month	7	13	6	0	26
Do not purchase per pack	18	43	61	1	123
Total	283	766	381	10	1,440

Note: The totals for Tables 14 and 15 are the same since respondents who had consumed untaxed cigarettes were asked the same questions for both single cigarette and pack purchases.

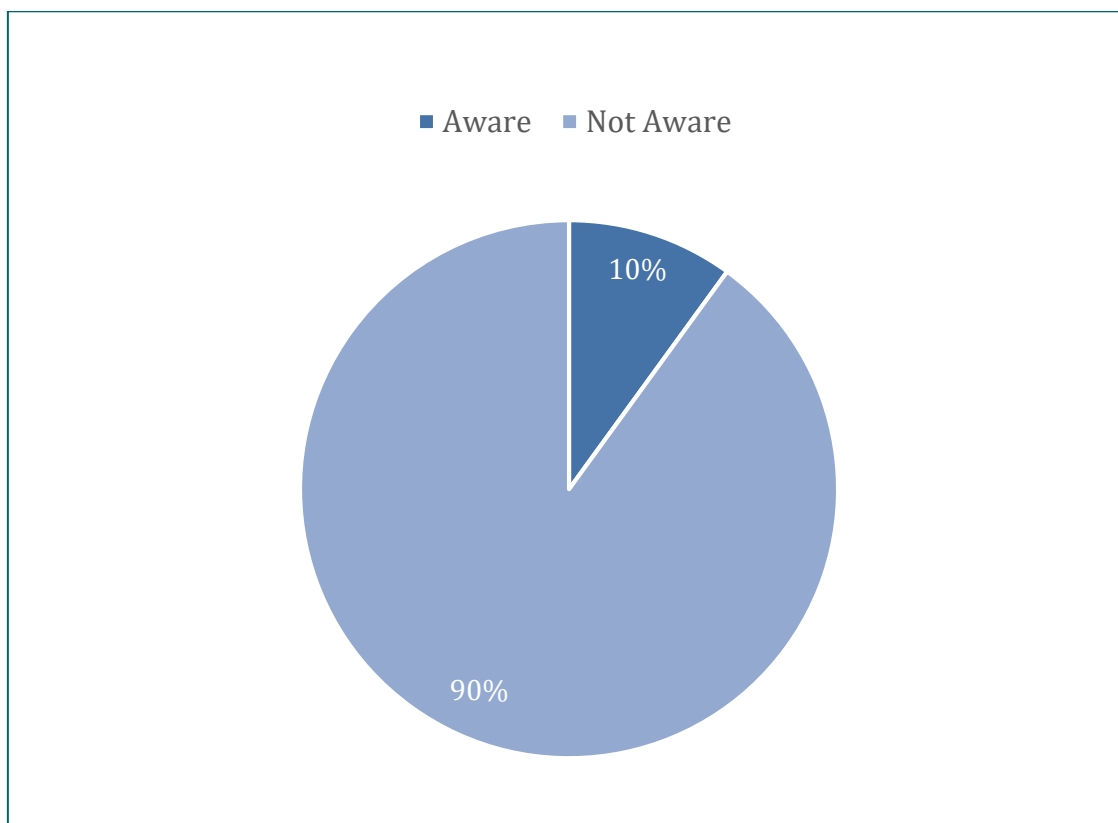
Table 15. Frequency of Single Purchase of Cigarettes by Smokers

Frequency of purchase per pack	Have consumed untaxed cigarettes				Total
	Have Consumed	Have Not Consumed	Not Aware	Refuse to Answer	
Everyday	29	75	71	0	175
Almost everyday	19	52	38	1	110
Every week	76	164	79	1	320
Every month	159	475	193	8	835
Total	283	766	381	10	1,440

Note: The totals for Tables 14 and 15 are the same since respondents who had consumed untaxed cigarettes were asked the same questions for both single cigarette and pack purchases.

Considering that only 20 respondents were active smokers of illegal cigarettes, more in-depth research should be conducted on the characteristics and typology of the smokers, and the types of cigarettes they consume. Further analysis of the 20 respondents found that 90 percent of the illegal cigarette consumers already knew that cigarettes are taxable goods (see Figure 9). As the previous data has shown, they purchased the illegal cigarettes mainly due to the affordable price.

Figure 9. Smokers' Awareness that Cigarettes are Taxable Goods



Further questions were asked regarding the method of purchase of cigarettes by smokers who regularly consumed cigarettes, as shown in Figure 10. Most of the time, smokers who regularly purchased illicit cigarettes purchased them per pack instead of by individual cigarette. In addition, smokers who regularly purchased illegal cigarettes preferred *kretek* cigarettes, especially with a filter, to light cigarettes.

Figure 10. Types of Cigarettes Regularly Consumed

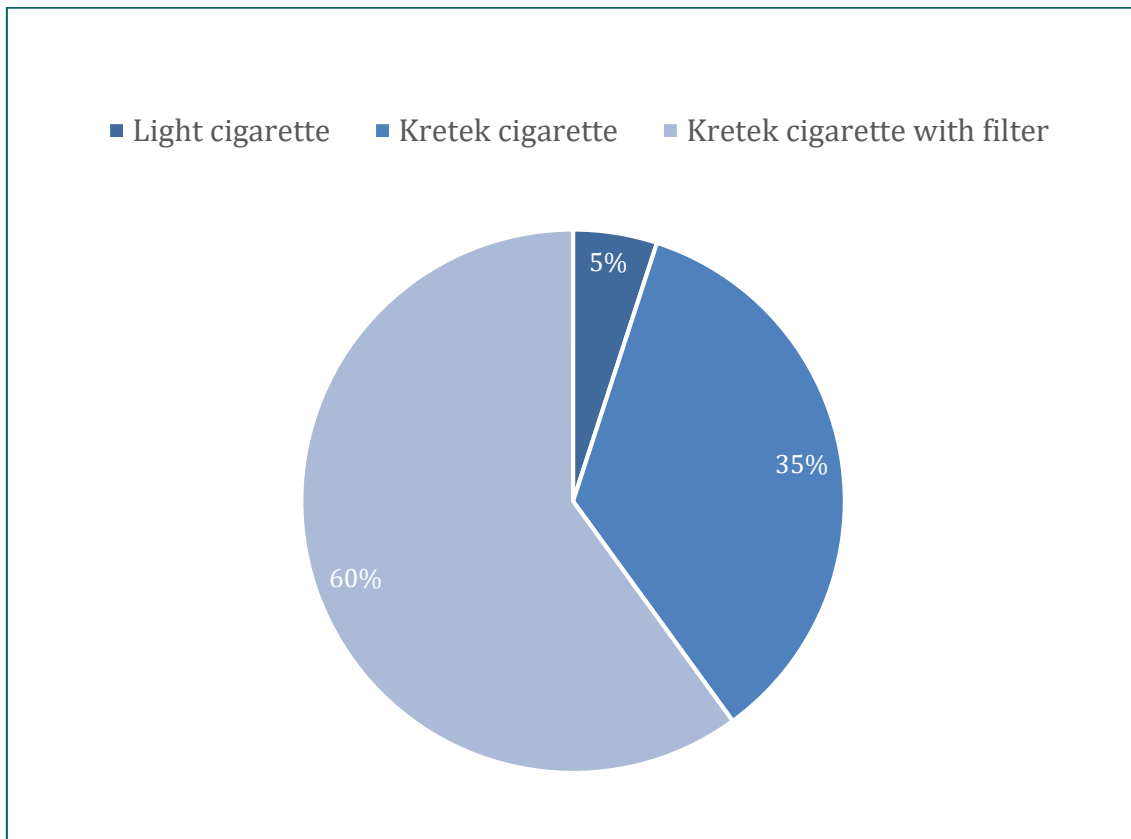
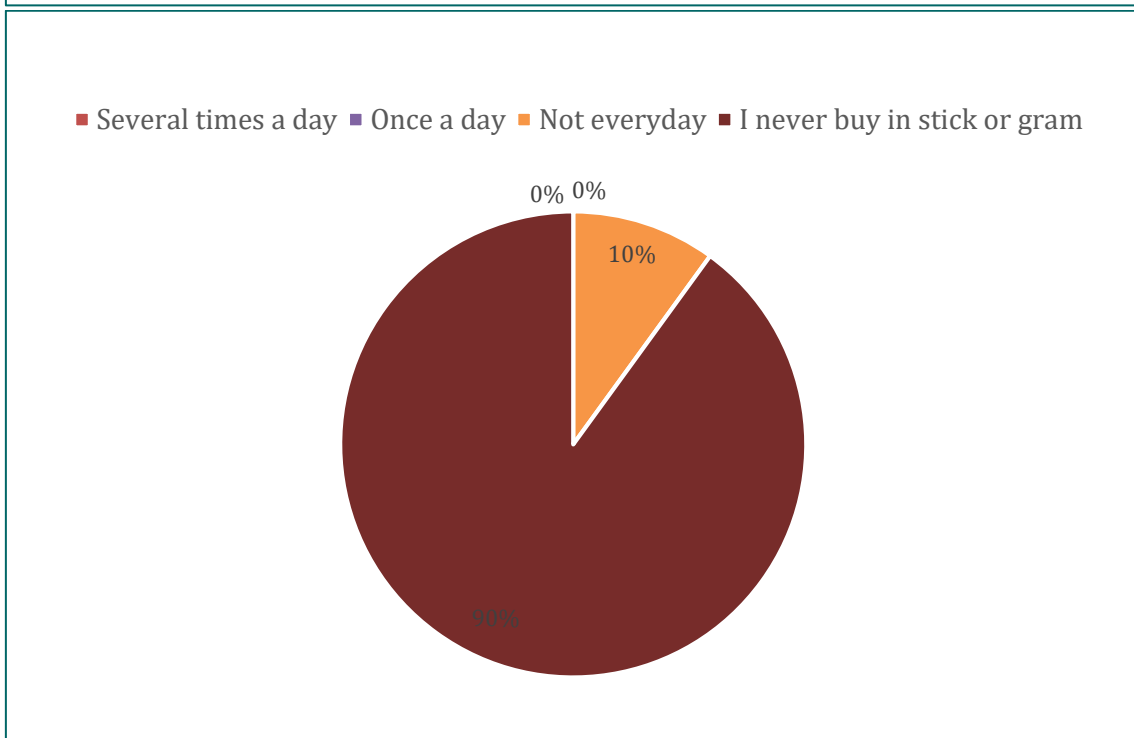
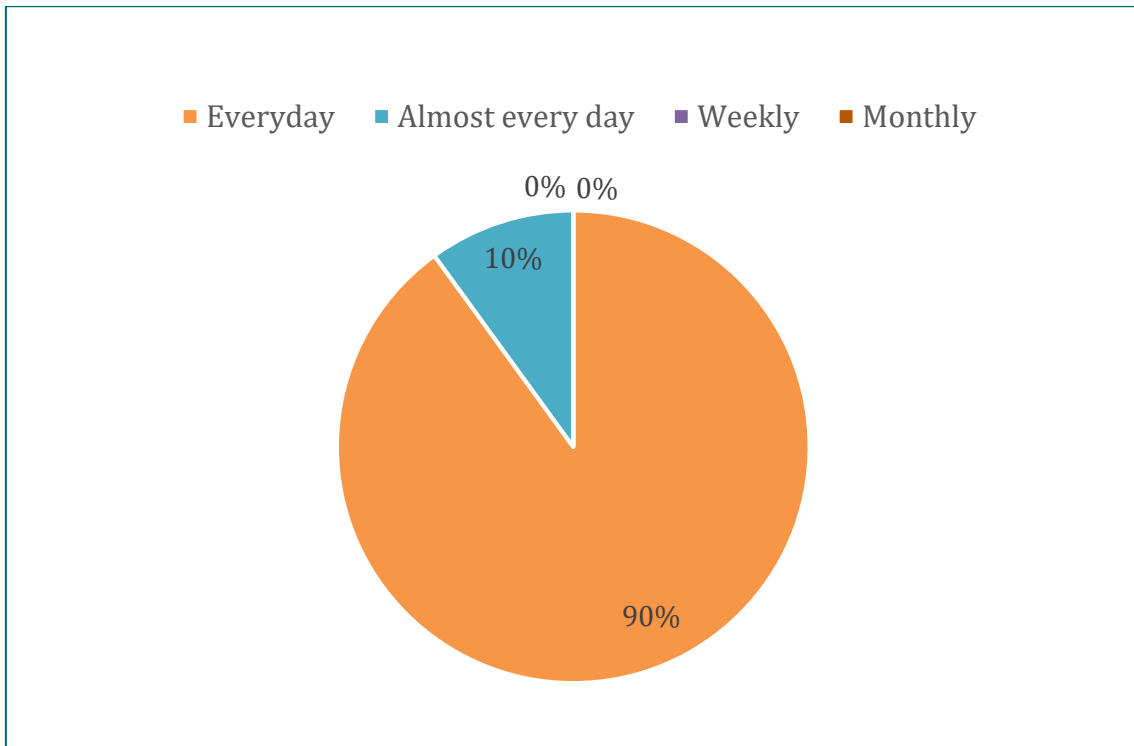


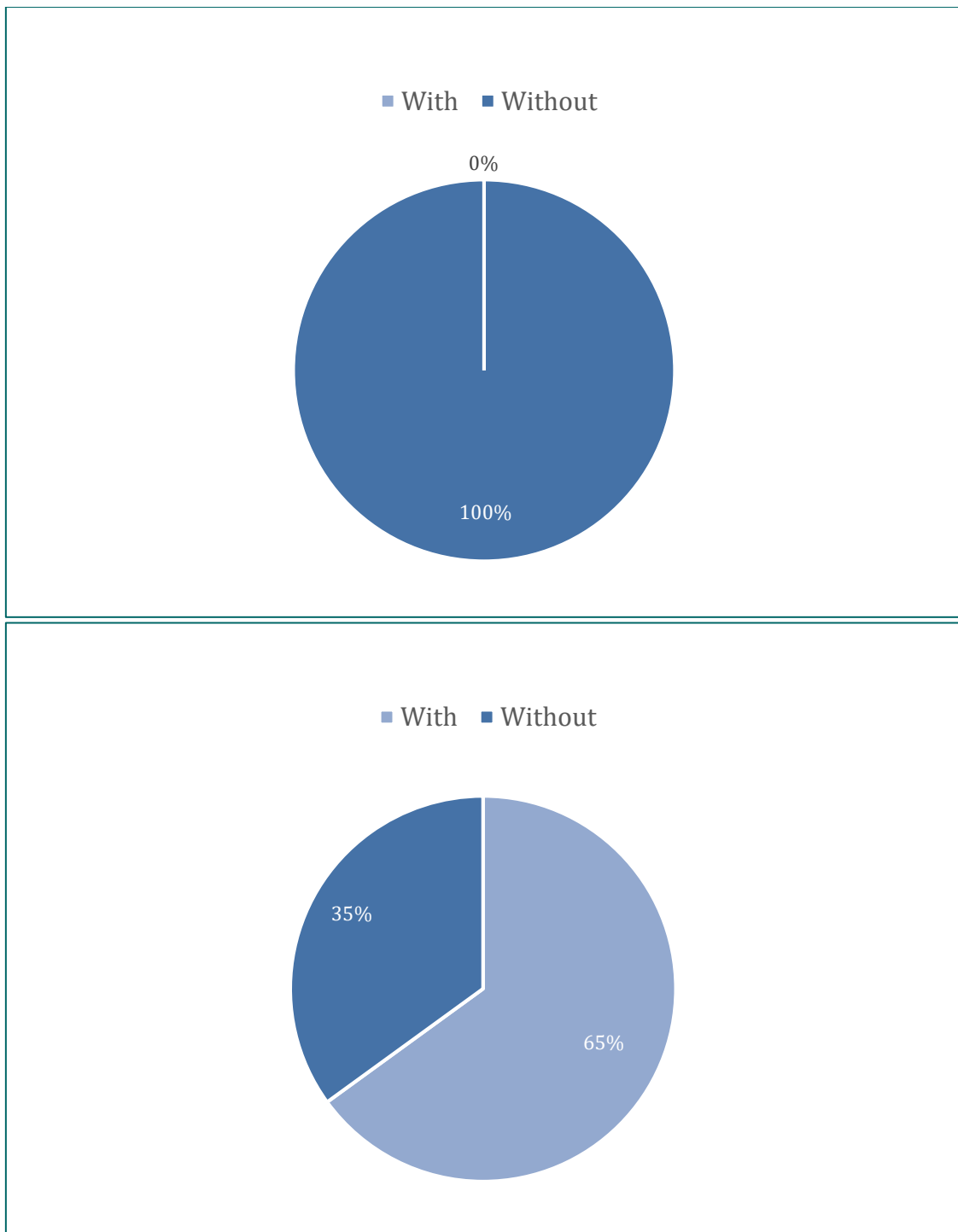
Figure 11 shows that the illegal cigarette smokers were active smokers who purchase cigarettes in the form of packs (90 percent). Only a few bought individual cigarettes. Moreover, the frequency of smokers who regularly purchased illicit cigarettes have daily purchasing habits. Further analysis of illicit cigarette smokers showed that they all purchase cigarettes from street vendors or stalls. None of them purchased the illicit cigarettes from minimarkets.

Figure 11. Frequency of Illicit Cigarette Purchase per Pack versus in the Form of Single Purchase



An important focus of further research on illicit cigarettes pertains to the characteristics of the illegal cigarettes being consumed. In fact, visually identifying illicit cigarettes is not difficult. Figure 12 demonstrates that all illegal cigarettes could be identified by their packaging. All of the illicit packs were not stamped with the excise band, and some did not contain a pictorial health warning.

Figure 12. Package with an Excise Stamp versus those with a Pictorial Health Warning



Based on data on the profile of smokers consuming illicit cigarettes and the characteristics of the cigarettes, it can be concluded that the majority of illicit cigarette smokers are active smokers and many of them are aware that cigarettes are taxable goods. Most of them purchase illicit cigarettes in the form of packs; however, more than 20 percent do not purchase manufactured cigarettes, but rather hand-roll their own.

Illicit cigarettes are not found in minimarkets, as smokers purchase them from street vendors or stalls. Characteristics of illicit cigarettes consumed by most smokers can be identified by the lack of excise band attached to them and no health warning.

4.3 Will Increasing Price Decrease Cigarette Consumption?

The Price Elasticity of Demand of Substitute Cigarettes

Increases in taxes that result in increased prices are an effective tool in reducing cigarette consumption. In this study, the calculation of the effect of changes (increases) to the price of excise cigarettes against the demand of illegal cigarettes could not be carried out directly. However, we were able to ascertain consumer responses to price increases in the survey instrument by asking respondents about their intended reactions in response to a 50 percent and 100 percent increase from the initial price per cigarette.. The substitution to cheaper cigarettes would include substitution to cheaper illicit cigarettes.

All Surveyed Regions

For all surveyed regions shown in Table 16, the price elasticity of demand for substitute cigarettes is -0.48 if the price were to increase by 50 percent, and -0.41 if the price were to increase by 100 percent. In general, the elasticity in both conditions is relatively low, or in other words, inelastic. Inelasticity means that any increase in the price of excise cigarettes will only affect a relatively small change in the demand for substitute cigarettes (that is, illicit cigarettes). In this case, there will be no substantial increase in the demand for substitute cigarettes even if the price of excise cigarettes increases drastically. A few causes of inelasticity include scarcity of illegal cigarettes, especially with a strict tobacco excise monitoring system in effect, and consumer’s tendency to not replace their cigarettes with another brand, even if it is cheaper.

Under these conditions, if the excise is increased at the same percentage as the increase of the cigarette price, the aggregate excise proceeds are projected to increase. Even though there is a “threat” of the increasing consumption of illicit cigarettes driven by the increased price of excise cigarettes, this will not diminish the proceeds from the tax. The preservation of the amount of excise revenue occurs, because the loss of excise revenue incurred due to the fact that the change in the consumption of excise cigarettes to the consumption of illicit cigarettes is still less than (or compensated by) the increase of the excise revenue, which is pushed by the increase of the cigarette excise itself.

Table 16. Price Elasticity of Demand for Substitute Cigarettes in All Surveyed Regions

Price Change Percentage (%)	50%	100%
-----------------------------	-----	------

Change in the demand of substitute cigarettes (cigarette/day)	3,213.4	4,825.4
Aggregate demand of excise cigarettes (cigarette/day)	10,245.9	6,882.9
Percentage of the change in the demand of substitute cigarettes (%)	23.9	41.2
Price elasticity of the demand for substitute cigarettes	0.48	0.41

Each Region

As shown in Table 17, in Bandung Regency, the recorded price elasticity of the demand for substitute cigarettes is higher (in absolute terms) compared to the elasticity in the surveyed region generally. With an increase in excise cigarette prices of 50 percent, the price elasticity of the demand for substitute cigarettes is -0.81. If the price of cigarettes increases by 100 percent, the elasticity is -0.53. The numbers show that cigarette consumers in Bandung and the Regency of Bandung are more sensitive to increases in price than other regions surveyed, they tend to consume more than one single brand. Furthermore, there relatively is more availability of substitute cigarettes in the region.

Table 17. Price Elasticity of Cigarette Demand in Each Region

	All Regions		Bandung & Kab. Bandung		Tangerang		Banyumas		Malang		Lampung Tengah & Lampung Selatan		Gowa	
	50	100	50	100	50	100	50	100	50	100	50	100	50	100
Price Change Percentage (%)														
Percentage of the change in the demand for substitute cigarette (%)	23.9	41.2	40.4	53.4	11.6	20.7	32.8	52.3	22.2	39.6	17.4	50.9	25.8	34.1
Price elasticity of the demand for substitute cigarette	-0.48	-0.41	-0.81	-0.53	-0.23	-0.21	-0.66	-0.52	-0.44	-0.4	-0.35	-0.51	-0.52	-0.34

The price elasticity of demand for substitute cigarettes in Tangerang is the lowest compared to the other regions. The elasticity in this region is -0.23 if the price increases

by 50 percent for excise cigarettes, and -0.21 if the price of excise cigarettes increases by 100 percent. The numbers show that cigarette consumers in Tangerang are less sensitive to price increases compared to other regions, and individuals have the tendency to consume only one single brand. There is also the availability of substitute cigarettes in the region.

Similar to Bandung and the Regency of Bandung, the price elasticity of demand of substitute cigarettes in Banyumas is higher than the elasticity in the surveyed region. If the excise cigarette price increases by 50 percent, the price elasticity of demand of substitute cigarettes in this region is -0.66, while if the excise cigarette price increases by 100 percent, the elasticity is -0.52. The same factors causing high price elasticity of demand in Bandung and the Regency of Bandung may have also driven the relatively high price elasticity in Banyumas.

The price elasticity of demand of substitute cigarettes in Malang is the closest to the general price elasticity. The elasticity in this region is -0.44 at a price increase of 50 percent, and at -0.4 at a price increase of 100 percent. Calculated by the number of cigarettes consumed by the respondents, Malang is the second largest region after Tangerang.

Central Lampung and South Lampung are the only surveyed regions with an increasing elasticity in the event of an increasing simulated excise cigarette price. At an increase of excise cigarette price of 50 percent, the price elasticity of demand of substitute cigarettes is -0.35, and at an increase of excise cigarette price of 100 percent, the elasticity is -0.51. This condition indicates that price sensitivity is only stimulated at a relatively high level price increase. This indication means that at a certain level of price increase, not many people will start smoking another brand. However, if the price increase is categorically high, many more people will start changing their cigarette brand.

The price elasticity of demand for substitute cigarettes in Gowa is opposite to the rate of elasticity in Central Lampung and South Lampung. At an excise cigarette price increases of 50 percent, the price elasticity of demand for substitute cigarettes is -0.52. At an excise cigarette price increases of 100 percent, the elasticity is -0.34. This condition in Gowa is similar to that of Bandung and the Regency of Bandung, whereby the elasticity of an excise cigarette price increase of 50 percent is higher than of an increase in the price of 100 percent.

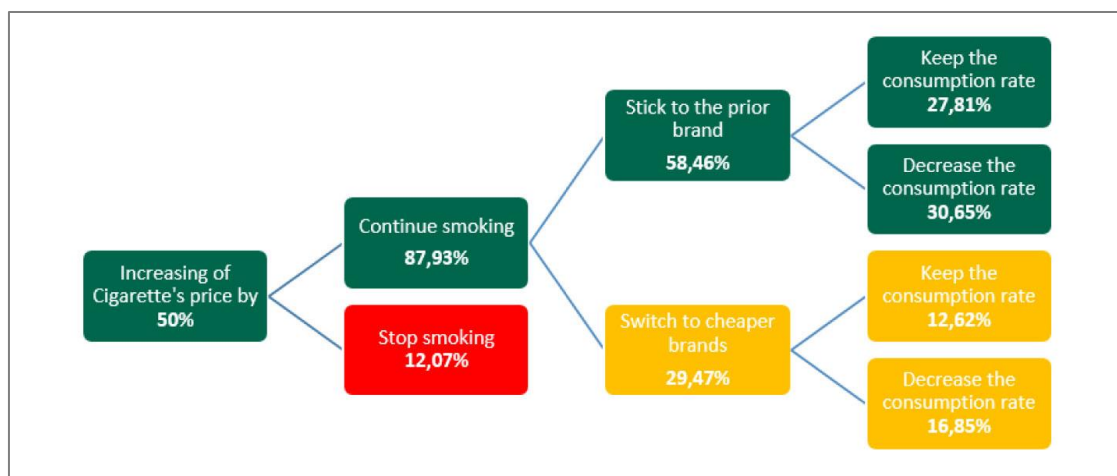
The goal of excise tax policy has been to reduce the affordability of cigarettes and thereby reduce consumption. However, analysis by the World Bank (Zheng et al., 2018), shows that in spite of increases in excise taxes and price, the increases in taxes and prices in Indonesia have not significantly reduced affordability enough to result a significant reduction in consumption. While excise taxes increases reached a peak in 2016 with an increase of 14.2 percent, increases in 2017 and 2018 were only 10.5% and 10.0%,

respectively. Furthermore, there was no increase in 2019. These increases are of a similar magnitude to increases in nominal income, and thus maintaining affordability rather than reducing it. This has contributed to the lack of decline in tobacco use in Indonesia.

During this research, we attempted to conduct a simulation of retail price increases to examine changes in smokers' behavior, especially in terms of the amount of cigarette consumption. For the simulation, the retail price was increased by 50 and 100 percent per pack respectively. Furthermore, it is assumed that a retail price increase would not only be caused by an increase in excise tariff, but also the minimum retail price which is decided by the government.

As shown in Figure 13, when the retail price increased by 50 percent nearly half of smokers would change their behavior by quitting (12 percent) or reducing consumption (31 percent). A little more than a half of smokers would not quit or reduce consumption, although many would do so by switching to a cheaper brand (30 percent). This is enabled by the complexity of the excise tariff structure in Indonesia, which has resulted in consumers switching to cigarette brands with lower excise tax rates.

Figure 13. Smoker Responses to an Increase of Cigarettes Price by 50 percent



Compared to the previous graph, as shown in Figure 14, when the retail price was 100 percent higher, 32 percent would likely quit smoking (compared to 12 percent for a 50 percent price increase) and 24 percent would reduce consumption (compared to 31 percent for a 50 percent price increase). In total 56 percent (compared to 43 percent for a 50 percent price increase) would either quit or reduce consumption as a result of 1 100 percent price increase. This shows that the effect of a larger price increase would have considerably greater impact on health. A similar magnitude would trade down to cheaper cigarettes.

Figure 14. Smoker Responses to an Increase of Cigarettes Price by 100 percent



The research shows that if the cigarette prices increased by 100 percent, or become twice as expensive as the previous price, the number of smokers who stop smoking would be higher, at 31.48 percent. This means that the government should firmly enforce regulations that increase the excise tariff.

Conclusion and Recommendations



CONCLUSION AND RECOMMENDATIONS

From the examination of 1,201 packs collected from respondents, only 20 respondents, or less than 2 percent, owned a pack of cigarettes without an excise stamp, or with a fake excise stamp and no pictorial health warning. This is substantially lower than the latest tobacco industry funded and highly critiqued study that estimated that illicit cigarette consumption in Indonesia in 2016 was about 12.2 percent, or equivalent to 39.7 billion of 326.8 billion cigarettes consumed (Oxford Economics, 2017).

Respondents who consumed illicit cigarettes stated that the low price was the main factor influencing them to buy illicit cigarettes. Only 20 percent of respondents stated that they had smoked illicit cigarettes at least once, although this does not imply that they were regular or frequent users of illicit cigarettes as evidenced by only 2 percent of packs collected being illicit. Furthermore, smokers with higher incomes were less likely to have smoked an illicit cigarette. Approximately 43 percent of smokers who had smoked illicit cigarettes had an income of less than Rp1,500,000 per month, while only 1.8 percent of smokers who had smoked illicit cigarettes had an income of more than Rp5,000,000 per month.

Even though people with lower incomes were more likely to smoke illicit cigarettes, the consumption of illicit cigarettes was not a long term behavior. This is indicated by the significant differences between the proportion of smokers who had smoked illicit cigarettes (20 percent). The findings of this survey indicated that illicit cigarettes only accounted for 2 percent of the market.

Most of respondent were unaware that illicit cigarettes exist. Only 20 percent (293 respondents) of respondents were aware of non-taxed, illicit cigarettes. Most respondents who had smoked illicit cigarettes obtained the illicit cigarettes from another person, rather than purchasing the cigarettes themselves. In regard to those who purchased illicit cigarettes for themselves, it may be deduced that the lower price was the main reason for them to buy illicit cigarettes.

Accessibility was also a factor in the consumption of illicit cigarettes. This is shown by the fact that the Regency of Banyumas and the Regency of Malang had the largest number of respondents who smoked illicit cigarettes.

Based on smokers' responses in this survey, price increases of 50 percent and 100 percent would have a significant impact on smoking by reducing the prevalence of smoking, as well as reducing cigarettes smoked per day by continuing users. Up to 12 percent and 32 percent of smokers intended to quit smoking in response to a 50 percent

or 100 percent increase in cigarette prices, respectively. By comparison, cigarette prices increased by less than 10 percent in 2018.

Of those smokers who indicated that they did not intend to quit, more than half would reduce the number of cigarettes smoked. The higher the price increase, the fewer cigarettes smokers would consume. A significant number of continuing smokers would substitute down to cheaper brands in response to price increases. It should be noted that the large number of tax tiers in Indonesia contributes to more opportunities for this substitution to cheaper brands.

From the analysis, the policy recommendations are as follows:

- Increase cigarette excise taxes in order to increase cigarette prices and reduce the affordability of cigarettes, since illicit cigarettes in Indonesia are rare and, contrary to the claims of the tobacco industry, do not undermine the objectives of tobacco tax policies.
- Larger tax increases are more effective than smaller tax increases at reducing tobacco use. Price increases of 50 percent and 100 percent would have a significant impact on smoking by reducing the prevalence of smoking, as well as reducing cigarettes smoked per day by continuing users. Up to 12 percent and 32 percent of smokers intended to quit smoking in response to a 50 percent or 100 percent increase in cigarette prices, respectively.

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