ISSN 2345-0282 (online) http://jssidoi.org/jesi/ 2020 Volume 8 Number 1 (September) http://doi.org/10.9770/jesi.2020.8.1(74)













TOBACCO EXCISE TAX POLICY IN INDONESIA: WHO DOES REAP THE BENEFITS?

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Received 18 November 2019; accepted 27 July 2020; published 30 September 2020

Abstract. In Indonesian tobacco, excise tax policy never decrease every year. As a result, the number of tobacco industries sharply declines, however the prevalence of tobacco smoking steadily increase since 1995. Therefore, this research aims to estimate the increase of tobacco excise tax and its impact on cigarette consumption, government revenue, and the possibility of cigarette sold illegally. There are two analytical model, Logit and Tobit. Logit model is used to estimate the impact of cigarette price towards the probability of household member to smoke or not, and Tobit model is used to estimate the impact of price change towards the amount of cigarette consumption. Tobit model is employed since it include non-smoker household, covering 40% of total household. The estimation is based on SUSENAS published on March 2017. The result suggests increasing cigarette prices does not lessen people desire to be smokers; indicating that most Indonesian consider cigarette as basic needs. Consequently, the increase of tobacco excise tax leads to the growth of government revenue and number of illegally sold cigarette. Therefore, it conclude that large-scale industries benefit the most, when this result is linked to the decrease of tobacco industries data. Meanwhile, Indonesian people may get the benefit, if the government revenue is appropriately allocated to stimulate economic and development.

Keywords: Tobacco Excise; Tax Policy; Prevalence of Tobacco Smoking; Logit; Tobit

Reference to this paper should be made as follows: Santoso, D.B., Erlando, A. 2020, Tobacco Excise Tax Policy in Indonesia: Who Does Reap The Benefits? Entrepreneurship and Sustainability Issues, 8(1), 1108-1121, http://doi.org/10.9770/jesi.2020.8.1(74)

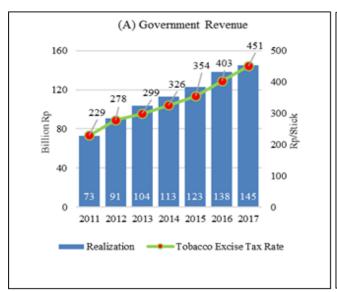
JEL Classifications: D1, D4, H2, L1, L2

1. Introduction

Since the issuance of the Law on Excise in 1995 and its renewal in 2007, Indonesia decrees cigarette as a limited and supervised goods. Basically, Indonesia applies two simultaneous regulation on excise control policy, by: (i) market interventions; for instance, creating excise tariff structure based on production capacity; or (ii) non-market interventions; for example, establishing a smoke-free area. Both policies aim to reduce cigarette consumption, to increase government revenue, and to control illegal cigarette in the market (Levy, Yuan, & Mays, 2018; Rosser, 2015; Mackay, Ritthiphakdee, & Reddy 2013; Chaloupka, Yurekli, & Fong 2012; Chaloupka, Straif, & Leon, 2011; Barber & Ahsan, 2009; Ranson et al., 2002; Wakafield & Chaloupka, 2000; Hu, Sung, & Keeler 1995). Therefore, the policy is considered effective if it is successful in reducing cigarette consumption, optimizing

ISSN 2345-0282 (online) http://jssidoi.org/jesi/2020 Volume 8 Number 1 (September)
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government revenue, and preventing the possibility of illegal cigarette (Bhatnagar et al., 2019; Smith, Thompson, & Lee 2019; Hiscock et al., 2018; Ho et al., 2018; Van Hedger et al., 2018; Levy, Chaloupka, & Gitchell 2004; Lantz et al., 2000). However, empirical evidence shows an anomaly, in which the yearly increase of cigarette excise tariff is not followed by significant reduction of cigarette consumption. This is as shown in Figure 1 (on the left) that shows the increasing cigarette excise tariff since 2011. Meanwhile, Figure 1 (on the right) shows that Indonesian cigarette production and consumption are above 300 billion sticks per year. This data hints that the cigarette excise policy is not effective in reducing cigarette consumption.



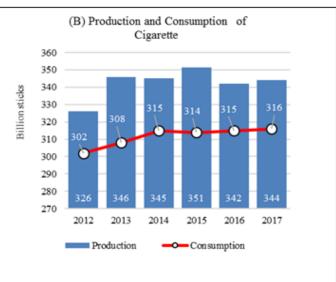


Figure 1. The Evolution of Cigarette Consumption, Government Revenue, and Cigarette Industries Production Scale *Source*: Data Processed from Ministry of Finance in Indonesia (2019)

However, empirical evidence shows an anomaly, in which the yearly increase of cigarette excise tariff is not followed by significant reduction of cigarette consumption. This is as shown in Figure 1A that shows the increasing cigarette excise tariff since 2011. Meanwhile, Figure 1B shows that Indonesian cigarette production and consumption are above 300 billion sticks per year. This data hints that the cigarette excise policy is not effective in reducing cigarette consumption. Therefore, it is interesting to find out who get the most benefit from cigarette excise policy. Therefore, this study aims to estimate the impact of increasing excise tariff towards (i) cigarette consumption; (ii) government revenue, and (iii) illegal cigarette circulation.

2. Materials and Methods

There are two concepts in consumer behaviour theory, relevant with person's decision to smoke. First, consumer is assumed to make a decision based on rational choice; thus, price and income become the main factors that affect them in purchasing something (Albers & Nancy, 1999; Acton, 2000; Ham & Hope, 2003; Jamison & Myers, 2008; Joshi & Rahman, 2015). Based on that concept, the increase of cigarette price will reduce the cigarette consumption by reducing the purchasing power (De Beyer & Yurekli, 2000; Sunley, Yurekli, & Chaloupka 2000; Adioetomo & Djutaharta 2005). Therefore, if the cigarette price is increased and the income is assumed to remain constant, people tend to reduce cigarette consumption, possibly stop smoking altogether.

Second, on the other hand, consumer is considering non-price factors like taste, social, and cultural reason (Ang, Cheng, & Tambyah, 2001; Eisend & Schuchert, 2006; Furnham & Valgeirsson, 2007). This opinion states that the increasing price of cigarette will not reduce its consumption, maybe even increase. This phenomenon is caused by

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two reasons: (i) cigarette is considered as a basic needs so that an increase of its price will not reduce people intensity to smoke (Rahman et al., 2015), and (ii) cigarette is considered as a luxury goods that support consumer lifestyle. Therefore, price can not force smoker to reduce their intensity to smoke (Cheung and Prendergast, 2006).

Based on the two mentioned framework, the analysis model employed in this research consist of two equation.

Firstly, Binary Analysis Model used to estimate the probability of a person's smoking decision. The binary model specification is as follows:

$$C_i^* = X_i' \gamma + \varepsilon_i$$
, where $C_i = 1$ if $C_i^* > 0$, 0 otherwise.....(1)

Here, C_i=1 is a smoker and C_i=0 for non-smoking person, thus this equation can be said as the probability of a person's tendency to be smoker. While X is vector matrix for factors affecting person tendency to be a smoker. Here, there are two main factors, which are cigarette pricing and household income.

Secondly, when the probability of a person's tendency to be smoker influence consumption of cigarette, thus the equation of cigarette consumption should be estimated by treatment-effect model. Therefore, the treatment-effect model specification is as follows:

$$Y_i = X_i'\beta + \gamma C_i + E_i \tag{2}$$

Where Y is the amount of cigarette consumption. This equation is a simultaneous estimation, due to the error term (E) in equation (2) is highly influenced by the error term (ϵ) in equation (1) (Greene, 2003; Abadie & Imbens, 2006).

The estimating models use secondary data from SUSENAS (National Social and Economic Survey) released by Central Bureau of Statistics in Indonesia (BPS RI) in march 2017. SUSENAS data consists of 297.726 household, where 40% of it is a non-smoker household, which means that none of the household members are smoker. Furthermore, the results from both models are used to estimate the impact of cigarette excise tariff on cigarette consumption, government revenue, and illegal cigarette circulation.

3. Results

3.1 Controlling Tobacco Products through Excise

In the beginning, excise tax is separated in several ordinance and not made into a law, such as kerosene excise, distilled spirits excise, liquor excise, sugar excise, and tobacco excise. Implementation of those ordinance are discriminator, as evidenced by uneven imposition of import excise. On the other hand the regulation objects is limited, even though the national development require a substantial income source. Hence, the excise tax is expanded in order to explore the potential excise tax object and to increase government income from excise tax. As the result, Law No. 11/1995 on Excise is issued in Indonesia. The law is expected to simplify the law enforcement on excise tax. Afterwards, in 2007 Law No. 37/2007 on Amendment of Law No.11/1995 is issued in Indonesia due to three main reason.

First, there are many aspects that have not been accommodated in the application of Law No. 11/1995 on Excise in Indonesia. In order to optimize excise tax as one of government income source, an amendment corresponding to social and economic development is needed. Second, a firm excise boundary is needed as a law basis on excise object expansion. Third, the Law No.37/2007 will act as an improvement of excise levy administration system

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and enhancement of law enforcement efforts in accordance with good governance improvement. In the Law No.39/2007, Excise is defined as a government levy on a specific type of goods which: (i) consumption needs to be controlled; (ii) circulation needs to be supervised; (iii) usage may cause negative impact on living environment; and (iv) usage need to be imposed by tax fairness and balance. In Indonesia, excise tax is under responsibilities of Directorat General of Customs and Excise, Ministry of Finance. Excise is a form of indirect tax that serves as government income source, other than taxes and State Owned Enterprises (BUMN) profits.

The dutiable goods set by the government are including: (i) etyhl alcohol or ethanol; (ii) beverage containing etyhl alcohol or ethanol; and (iii) tobacco products. On tobacco products, there are two levy system; that are ad valorem and specific system. Ad valorem excise is imposed based on percentage from total sales value, while specific system excise is imposed per stick of cigarette. There are three aspects in excise that give excise an exclusive nature. First, excise is selectively imposed. Excise is only imposed to several goods, especially on tobacco products and alcohol. Moreover, the tariff level is also separately determined for each goods. In fact, each of tobacco product may has a different excise tariff level depends on the product type and specification.

Second, there are unique justifications in excise levy, which are: (i) controlling the consumption of a certain type of goods (Schafferer et al., 2018; Shang et al., 2019; Bridge et al., 2020); (ii) internalizing negative externality (Alvarez, 2019; di Bella et al, 2019; Quiggin & Wang, 2019; Nwadialor & Agbo, 2020; (iii) increasing the efficiency of resources (Akhmetshin et al., 2019; Becker et al, 2019; Sugiyama & Koonsed, 2019); (iv) creating jobs (Friske & Cockrell, 2019, Kitchen et al., 2019; Nguyen et al, 2020); and (v) increasing government income; among others (Ross et al., 2017; Alsukait et al., 2019; Luong & Vu, 2020). Those reasons make excise tax different with any other tax, since normally government income is used as the main justification in every tax levy.

Third, excise implicitly indicates a physical control on some goods and enforce obedience on the law. Based on that, excise function is as the regulator, that oversee, control, and limit the usage and circulation of a goods. However, it can not be denied that excise has an important role as government income source (Laković et al., 2019; Kovaleva et al., 2020), since government income from excise in Indonesia is known to increase from year to year. The tobacco excise system in Indonesia has changed several times. Before 2005, Indonesia employs ad valorem excise system, then between 2006 and 2009, Indonesia shift to specific excise imposed per stick of cigarette, since its thought to be simpler compared to the ad valorem system. In fact, using specific excise is not simpler than the specific excise used in Indonesia since the tariff is based on retail selling price layers.

The following Table 1 shows the evolution of Indonesia excise tariff in 2010, 2017, and 2018. Since 2010, cigarette product is classified into three main categories: (i) SKM (Sigaret Kretek Mesin/Machine-Rolled Kretek Cigarette); (ii) SPM (Sigaret Putih Mesin/Machine-Rolled White Cigarette); (iii) SKT (Sigaret Kretek Tangan/Hand-Rolled Kretek Cigarette). Those three categories are further classified into seven classes with each excise tariff; thus in 2010 there are 18 layers of excise tariff. Government plans to reduce this layers into 12 in 2017, and further into 10 layers in 2018. Figure 2 also signifies that Indonesian government control cigarette consumption by imposing excise tariff and simplifying tobacco product excise tariff. Excise tariff structure is the number of excise tariff for SKM, SPM, and SKT, based on tobacco type, producer class, and Retail Selling Price (RSP).

ISSN 2345-0282 (online) http://doi.org/10.9770/jesi.2020.8.1(74)

Table 1. Development of Cigarette Excise Tariff in Indonesia

				2010			2017			2018		
TIP Type	Class of Production	Production Limits (2010)	Production Limits (2017)	Retail Selling Price Limit	Excise Taxes	Percentage of Excise Duty on Price	Retail Selling Price Limit	Excise Taxes	Percentage of Excise Duty on Price	Retail Selling Price Limit	Excise Taxes	Percentage of Excise Duty on Price
		(Sticks)	(Sticks)	(IDR/Stick)	(IDR/Stick)	(%)	(IDR/Stick)	(IDR/Stick)	(%)	(IDR/Stick)	(IDR/Stick)	(%)
Cigarette Clove Machine (SCM)	I	> 2 billion	> 3 billion	660 630-660 600-630	310 300 280	46.97% 46.51% 45.53%	1120	530	47.32%	1120	590	52.7%
	II	≤2 billion	≤3 billion	430	230	53.49%	820	365	44.51%	895	385	43.0%
				380-430 374-380	195 155	48.15% 41.11%	655-820	335	45.42%	715-895	370	46.0%
Cigarette Filter Machine (SFM)	I	> 2 billion	> 3 billion	600 450-600 375-450	310 275 225	51.67% 52.38% 54.55%	1030	555	53.88%	1130	625	55.3%
	II	≤2 billion	≤3 billion	300	200	66.67%	900	330	36.67%	935	370	39.6%
				254-300 217-254	165 105	59.57% 44.59%	585-900	290	66.29%	640-935	355	45.1%
	I	> 2 billion	> 2 billion	590	215	36.44%	1215	345	28.40%	1260	365	29.0%
Cigarette Clove Manual (SKT)				550-590 520-550	165 145	28.95% 27.10%	860-1215	265	25.54%	890-1260	290	27.0%
	II	500 million- 2 billion	500 million- 2 billion	379	105	27.70%	730	165 22	22.60%	470	180	38.3%
				349-379 336-349	95 90	26.10% 26.28%	470-730	155	25.83%			
	III	< 500 million	< 500 million	234	50	21.37%	465 400	100 80	21.51% 20.00%	400	100	25.0%

Source: Ministry of Finance in Indonesia (2019)

Simplification of excise tariff is regulated on Article No. 17, Ministry of Finance Republic Indonesia Regulation No. 146/PMK.010/2017 on Tobacco Product Excise Tariff. The regulation aims to: (i) optimize the income of tobacco excise; (ii) enforce the obedience of tobacco product producer and importer; and (iii) simplify the administration system of excise. These three aims are expected to facilitate government in overseeing cigarette circulation and to make a cost efficient system, such as: suppresing excise tape cost, facilitating easier market operations, reducing fraud in excise payment, as well as increasing administration effectiveness in cigarette excise tax.

3.2. Producer Responses on Cigarette Excise Policy

Prior to the estimation, author observes the producer behaviour in responding the cigarette excise policy reflected on ceiling Retail Selling Price (RSP). Observation result indicates two strategies of Market Transaction Price (MTP) applied by tobacco industries, which are: (i) establishing MTP above RSP, which generally used by large company; and (ii) establishing MTP under RSP, which generally used by medium and small company.

Essentially, the sales price strategy is used by large cigarette company to increase its profit through increasing sales turnover. Figure 2A illustrate the strategy of establishing MTP higher than the RSP appointed by the government, where the RSP, set in Rp937,- per stick, creating cigarette demand as much as 'A' stick. It turns out that large scale companies are responding it by assigning MTP as much as Rp1.120,- per stick. Certainly, the producer expect an increase in cigarette sales volume by 'B'. For large scale producer, this strategy can be interpreted as an instrument to limit new competitor. On the other hand by establishing MTP below SRP, small and medium producers also aim to increase their profits by increasing sales value, rather than increasing sales volume. Figure 2B illustrate the strategy of establishing MTP below the government stipulated RSP. This strategy

ISSN 2345-0282 (online) http://doi.org/10.9770/jesi.2020.8.1(74))

actually reduce the volume of cigarette sales. However, its sales value is increased, reflected in the rectangular area illustrating the the multiplication results between the cigarette price and the sales volume.

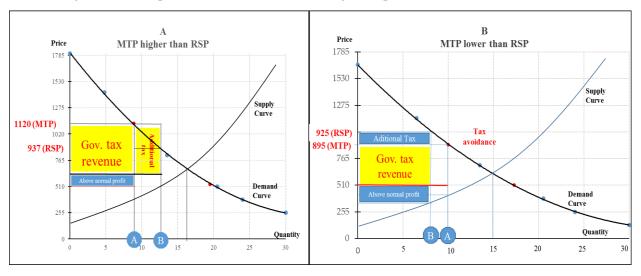


Figure 2. Cigarette Industries Responses on Excise Policy *Source*: Illustration of Primary Data Analysis Result (2019)

3.3. Consumer Responses on Cigarette Excise Policy

Consumer responses to cigarette excise policy can be found from two analysis: (i) consumer smoking participation; and (ii) consumer smoking intensity. An individual decision to smoke is determined by their income and cigarette price. In accordance to the obtained result in Table 2, an increase in income tends to encourage an individual to smoke, while increase in cigarette price tends to discourage an individual to smoke. This results is quite reasonable since individual income reflects purchasing power. An individual purchasing power is increasing if his/her income is rising higher than than the rise of cigarette price or the cigarette price is constant. The increase in purchasing power can be illustrated from Figure 3 that shows the probability to smoke shifted from point D. While the decrease in purchasing power can be indicated from the shifting smoking probability from point D to point C, under the condition that cigarette price is constant.

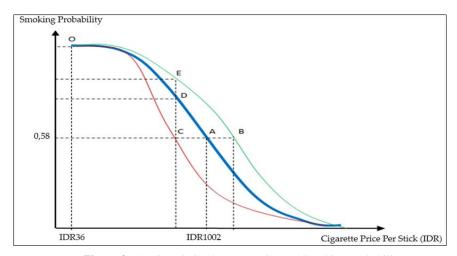


Figure 3. The Correlation between Price and Smoking Probability *Source*: calculated by the authors

ISSN 2345-0282 (online) http://jssidoi.org/jesi/2020 Volume 8 Number 1 (September) http://doi.org/10.9770/jesi.2020.8.1(74))

Meanwhile, the cigarette price per stick reflects the individual Willingness to Pay (WTP). WTP is said to be increased if the price that must be paid is smaller than the Ability to Pay (ATP), and vice versa. This increasing WTP can be illustrated from the shifting smoking probability, from point A to point D due to price effect. On the other hand, decreasing WTP is reflected from individual smoking probability that shifted from point D to point A.

Moreover, the estimation of cigarette consumption is explained in Table 2, and illustrated in Figure 4. The existing condition of cigarette consumption is also determined by consumer income and cigarette price (see Figure 5).

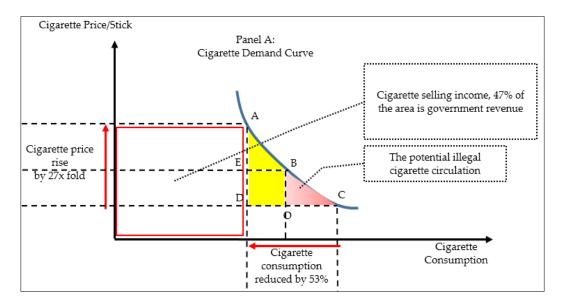


Figure 4. Correlation between Cigarette Consumption and Price *Source*: calculated by the authors

Overall, it is known that every increase in cigarette price tends to decrease cigarette consumption. However, the percentage of cigarette price increase is higher than the percentage of cigarette consumption decrease, indicating that cigarette consumption curve is inelastic. In accordance to Figure 4, if the cigarette price has reached point A, the decrease in cigarette consumption become smaller, even remains the same (consumption curve become vertical after point A). Moreover, there is a tendency that higher cigarette class will have higher elasticity; or realtively, cigarette consumption become more responsive towards cigarette price.

Equation 1 in Table 2 indicates the role of factors affecting people's decision to be a smoker. In the equation, every increase of household income causes an increase in one's tendency to be a smoker. Conversely, increase in the price of cigarettes reduces a person's interest in becoming a smoker.

Meanwhile, equation 2 indicates the amount of cigarette consumption, where the potential consumption of cigarettes is estimated to be around 14.25 billion cigarettes per week or 684.23 billion cigarettes in 2017. Cigarette excise tax policy in 2017 makes the average cigarette RSP of IDR1002 per stick, with a consumption level of 316 billion sticks. Thus it can be interpreted that the cigarette excise tax policy can reduce about 53% of the total potential cigarette consumption.

ISSN 2345-0282 (online) http://jssidoi.org/jesi/2020 Volume 8 Number 1 (September) http://doi.org/10.9770/jesi.2020.8.1(74))

Table 2. Result of Estimation

Equation 2 (Amount of Weekly Cigarette Consumption)	Coefficient	Std. Error	P > z
Dummy of smoking decision = 1; 0 for the other	14.2549	1.9078	0.000
Cigarette price per stick	-0.0181	0.0025	0.000
Dummy of cigarette price for Class I = 1; 0 for others	-0.1429	0.0026	0.000
Dummy of cigarette price for Class II = 1; 0 for others	-0.1672	0.0030	0.000
Dummy of cigarette price for Class III = 1; 0 for others	-0.3023	0.0049	0.000
Weekly Income Per Capita	8.9909	0.1981	0.000
Dummy of low income = 1; 0 for the others	0.00007	0.0000	0.000
Dummy of medium income = 1; 0 for the others	0.00002	0.0000	0.000
Constant	171.6626	1.3794	0.000
Equation 1 (The Probability of Smoking)	Coefficient	Std. Error	P > z
Average cigarette price per stick	- 0.8268	0.0825	0.000
Cigarette price per stick	- 0.6919	0.0816	0.000
Dummy of cigarette price for Class I = 1; 0 for others	- 0.6482	0.0817	0.000
Dummy of cigarette price for Class II = 1; 0 for others	- 0.8307	0.0818	0.000
Dummy of cigarette price for Class III = 1; 0 for others	0.4373	0.0090	0.000
Weekly Income Per Capita	0.0220	0.0019	0.000
Dummy of low income = 1; 0 for the others	0.0454	0.0011	0.000
Dummy of medium income = 1; 0 for the others	4.3319	0.1719	0.000

Source: calculated by the authors

The estimation results in Table 2 above can be illustrated in four curves. Figure on panel 5A illustrates the cigarette demand curve. Figure on panel 5B illustrates the relationship between one's decision to smoke and the intensity of cigarette consumption. While figure on panel 5C is the probability curve of person's interest to become a smoker, and finally, figure on panel 5D is a reflection curve of cigarette prices which serves as an explanation of the relationship between the probability curve and the intensity of cigarette consumption. There are three interesting findings based on the illustration in Figure 3, which are:

- 1. The policy of increasing cigarette excise tariffs is actually less effective in reducing cigarette consumption. Figure on panel 5C shows that the highest existing RSP is Rp1.002 per stick, with a probability level of 0.58, meaning that at the existing average RSP the probability of households to become smokers is 58%. Thus, any increase in cigarette excise will reduce the interest of household members to smoke. However, Figure 5A indicates that the demand curve for cigarettes with RSP above Rp1.000 per stick is close to a perfect inelastic. That is, any increase in cigarette prices will not significantly reduce cigarette demand.
- 2. The policy of increasing cigarette excise tariff is very effective in increasing governemt revenues. Figure on panel 5A shows that the gross income of tobacco industry before excise is estimated at Rp316 trillion, which is obtained from the multiplication of Rp1.002 with 316 billion sticks. Whereas 47% of the tobacco industry's gross income is government revenue. Moreover, the demand curve for cigarettes above Rp1000 per stick is inelastic, so that any increase in cigarette excise tax rates does not significantly affect the reduction in cigarette consumption, but it has a significant impact on increasing government revenues.
- 3. The policy of increasing cigarette excise tariff is not effective in suppressing the circulation of illegal cigarettes. Based on SUSENAS data, there are households that purchase cigarettes below Rp100 per stick and while the lowest price paid by consumers is Rp36 per stick. Meanwhile, the lowest RSP stipulated by the government was Rp165 per stick. Thus, the price of cigarettes under Rp165 paid by consumers can be assumed as illegal cigarettes. If so, then the distribution of illegal cigarettes is estimated at 33.8% of the demand for potential cigarettes (OC line in figure on panel 5A), or about 231 billion cigarettes. Thus, increasing excise tariffs has the potential to increase the circulation of illegal cigarettes.

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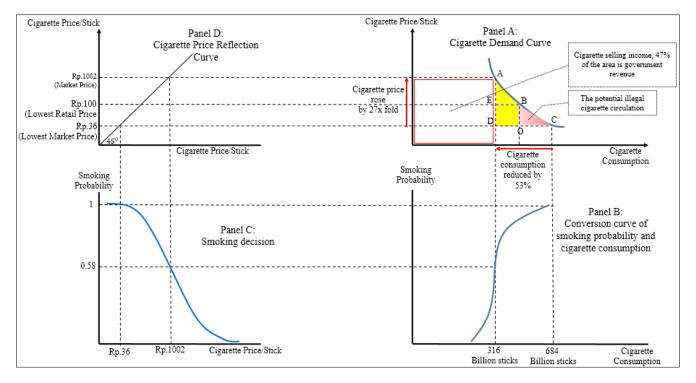


Figure 5. Impact of Cigarette Excise Tariff Policy on Cigarette Consumption, Government Revenue, and Illegal Cigarette Circulation *Source*: Illustration based on Logit and Tobit Estimation (2019)

3.3. Who Does Reap the Benefits?

Law No. 39/2007 on Excise mandates that the excise tax policy does not only contain a mandate to limit the distribution of cigarettes. The policy also contains the principle of equality for all parties participating in the cigarette industry (fairness in balance). Therefore, the government is obliged to ensure that the regulations made do not cause distortions which result in an unfair business competition climate. Furthermore, the determination of the excise tax rate is regulated in a ministerial regulation by considering optimizing state revenues and paying attention to industrial conditions and aspirations of industry players. Since 2009, the excise tariff structure was 19 layers and then simplified into 10 layers in 2018, and even planned to be 5 layers left in 2021. Based on the treatment-effect model estimation results, simulation of the cigarette excise structure simplification at unchanged tariff rates was not significant affecting the amount of cigarette demand and government revenue. In fact, this policy actually has a significant effect on the magnitude of the illegal cigarette circulation. With a fixed excise tariffs as in 2018, the planned excise structure simplification in 2019 will result in the increase in illegal cigarettes to 0.06%, or around 4 billion cigarettes. Thus, the tax structure simplification policy has an impact on increasing the circulation of illegal cigarettes.

Furthermore, simulations are carried out under the scenario of delaying the excise structure simplification policy and dividing it into three strata quota, namely:

- 1. Producer of more than 3 billion sticks cigarette with excise tariffs of 57% of MTP,
- 2. Producer between 1-3 billion sticks cigarette excise tariff of 50% of MTP;
- 3. Producer of below 1 billion sticks cigarette with excise tariffs of 35%.

As it turns out, the simulation results with this scenario show that the amount of illegal cigarette distribution has decreased by 0.9% or approximately 6 billion cigarettes. Furthermore, cigarette consumption decreased very little,

ISSN 2345-0282 (online) http://doi.org/10.9770/jesi.2020.8.1(74))

which was less than one million cigarettes, while state revenues experienced an increase of around 20% from 2017.

The policy that refers to this latest scenario has considerations that refer to the fate of the small and medium cigarette industry, especially associated with the role of the industry in absorbing labour. Small and medium-scale tobacco products industry have a large role in creating jobs (Conceição et al., 2018; Nguyen et al., 2020) which means accelerating the inclusive economic growth in Indonesia. Moreover, allowing small industries to be excluded from competition means eliminating opportunities for people who have limited capital to become entrepreneurs (Cooney et al., 2019; Sun et al., 2019), unless the government is able to provide other businesses that are better. The policy of simplifying the excise structure further strengthens the dominations of large industries. In the study of Gilmore, Branston, & Sweanor (2010), in 2009, the five largest cigarette companies in Indonesia controlled 76.10 percent of total sales. While in 2017 refers to market research conducted by Nielsen, the same five cigarette companies increased their share of sales to 88.77 percent. Still referring to Nielsen's data, in 2017, the five largest companies were actually able to sell well above the average production limit of 38.55 billion. On the other hand, the number of cigarette factories in 2012 amounted to 1320 units and continued to decline drastically to 754 units in 2016. Considering that cigarette entrepreneurs, especially small-scale businesses, currently have mobilized all their capacity to develop tobacco businesses, the government needs to be responsive and solutive in making policies that are able to solve the problem of the small and medium cigarette industry (including aspects of the factors of production).

Conclusion

Simplification of excise has hitherto not made a significant contribution to the creation of a "fair" industrial competition climate. Based on these facts, there are indications that small industries are increasingly pressed while large companies are increasingly enjoying abundant profits. That is, the policy of simplifying the structure of cigarette tax rates in Indonesia has not shown a more "fair" business climate improvement. If so, the formulation of excise policies must be addressed carefully. In order to create "fair" business competition, the government must continue to accommodate the interests of small industries for two reasons. First, the small and medium scale cigarette industries plays a large role in the absorption of labor, compared to large scale industries. Second, we must understand that small scale cigarette entrepreneurs do not have much better choices to switch to other businesses. The simple reason is that they have already turning all the capacity and skills in the cigarette industry. So that it is unfair for the small scale cigarette industry if they has to fight with the top five cigarette industries.

References

Abadie, A., & Imbens, G. W. 2006. Large sample properties of matching estimators for average treatment effects. *Econometrica*, 74(1), 235-267. http://doi.org/10.1111/j.1468-0262.2006.00655.x

Acton, G. J., & Malathum, P. 2000. Basic need status and health-promoting self-care behavior in adults. Western Journal of Nursing Research 22(7), 796-811. http://doi.org/10.1177/01939450022044764

Adioetomo, S. M., & Djutaharta, T. Hendratno. 2005. Cigarette Consumption, Taxation, and Household Income: Indonesia Case Study. Economics of Tobacco Control Paper, (26). Retrieved from http://documents.worldbank.org/curated/en/607961468258307588/pdf/317960HNP0Adio1eConsumption01publc1.pdf

Akhmetshin, E.M., Plaskova, N.S., Iusupova, I.I., Prodanova, N.A., Leontyev, A.N. and Vasilev, V.L., 2019. Dataset for determining rational taxation value with incompatible criteria of economic efficiency and equity. *Data in Brief*, 26, 104532. https://doi.org/10.1016/j.dib.2019.104532

Albers, M. & Nancy, D. 1999. Consumer misbehavior: Why people buy illicit goods. *Journal Consumer Market*, 16, 273-287. https://doi.org/10.1108/07363769910271504

ISSN 2345-0282 (online) http://jssidoi.org/jesi/2020 Volume 8 Number 1 (September) http://doi.org/10.9770/jesi.2020.8.1(74)

Alsukait, R., Bleich, S., Wilde, P., Singh, G. & Folta, S., 2020. Sugary drink excise tax policy process and implementation: Case study from Saudi Arabia. *Food Policy*, 90, 101789. https://doi.org/10.1016/j.foodpol.2019.101789

Alvarez, M., 2019. Distributional effects of environmental taxation: An approximation with a meta-regression analysis. *Economic Analysis and Policy*, 62, pp.382-401. https://doi.org/10.1016/j.eap.2018.10.003

Ang, S., S. Cheng, & Tambyah, K. 2001. Spot the difference: Consumer responses towards counterfeits. *Journal Consumer Market*. 18(3), 219-235. https://doi.org/10.1108/07363760110392967

Barber, S., & Ahsan, A. 2009. The tobacco excise system in Indonesia: hindering effective tobacco control for health. *Journal of public health policy* 30(2), 208-225. Retrieved from https://www.jstor.org/stable/40207240

Becker, U., Fernandes, T., Arora, R., Banerjee, A. & Saluja, M.S., 2019. The Indian Resource Panel: A Mechanism to Promote Resource Efficiency Policy Throughout the Indian Economy. In *Waste Management and Resource Efficiency* (pp. 275-285). Springer, Singapore. https://doi.org/10.1007/978-981-10-7290-1 24

Bhatnagar, A., Whitsel, L. P., Blaha, M. J., Huffman, M. D., Krishan-Sarin, S., Maa, J., ... & American Heart Association. 2019. New and emerging tobacco products and the nicotine endgame: the role of robust regulation and comprehensive tobacco control and prevention: a presidential advisory from the American Heart Association. *Circulation* 139(19), e937-e958. https://doi.org/10.1161/CIR.00000000000000669

Bridge, G., Lomazzi, M. & Bedi, R., 2020. Implementation of a sugar-sweetened beverage tax in low-and middle-income countries: recommendations for policymakers. *Journal of public health policy*, 41(1), pp.84-97. https://doi.org/10.1057/s41271-019-00196-z

Chaloupka, F. J., Straif, K., & Leon, M. E. 2011. Effectiveness of tax and price policies in tobacco control. *Tobacco Control*, 20(3), 235-238. http://dx.doi.org/10.1136/tc.2010.039982

Chaloupka, F. J., Yurekli, A., & Fong, G. T. 2012. Tobacco taxes as a tobacco control strategy. *Tobacco control*, 21(2), 172-180. http://doi.org/10.1136/tobaccocontrol-2011-050417

Cheung, W. L., & Prendergast, G. 2006. Buyers' perceptions of pirated products in China. *Marketing Intelligence & Planning* 24(5), 446-462. https://doi.org/10.1108/02634500610682854

Conceição, O.C., Saraiva, M.V., Fochezatto, A. & França, M.T.A. 2018. Brazil's Simplified Tax Regime and the longevity of Brazilian manufacturing companies: A survival analysis based on RAIS microdata. *EconomiA*, 19(2), 164-186. https://doi.org/10.1016/j.econ.2017.10.003

Cooney, T.M. & Licciardi, M. 2019. The same but different: Understanding entrepreneurial behaviour in disadvantaged communities. In *Entrepreneurial Behaviour* (pp. 317-345). Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-04402-2_13

De Beyer, J., & Yurekli, A. 2000. Curbing the tobacco epidemic in Indonesia. *Watching brief, east asia and the pacific region. May*, 6, 1-9. Retrived from http://siteresources.worldbank.org/INTINDONESIA/Resources/Human/brief_6-516.pdf

di Bella, E., Gandullia, L., Leporatti, L. & Montefiori, M., 2019. The Incidence of Sin Taxes: Evidence from Italy. In *Italian Studies on Quality of Life* (pp. 127-143). Springer, Cham. https://doi.org/10.1007/978-3-030-06022-0_9

Eisend, M. & Schuchert, P. 2006. Explaining counterfeit purchases: A review and preview. *Journal Acad Market Science Review*, 12, 1-22. Retrived from https://pdfs.semanticscholar.org/e173/9d8e00ed47a18b218deb164abcd51bb7e395.pdf

Friske, W. & Cockrell, S., 2019. Entrepreneurship, Excise Taxes, and the "Flight to Quality". *Journal of Macromarketing*, 39(4), 358-367. https://doi.org/10.1177/0276146719847754

Furnham, A. & Valgeirsson, H. 2007. The effect of life values and materialism on buying counterfeit products. *Journal Socio-Economic*, 36, 677-678. https://doi.org/10.1016/j.socec.2007.01.004

Greene, W.H. and Hensher, D.A., 2003. A latent class model for discrete choice analysis: contrasts with mixed logit. *Transportation Research Part B: Methodological*, 37(8), pp.681-698. https://doi.org/10.1016/S0191-2615(02)00046-2

ISSN 2345-0282 (online) http://doi.org/10.9770/jesi.2020.8.1(74))

Gilmore, A. B., Branston, J. R., & Sweanor, D. 2010. The case for of smoke: how tobacco price regulation is needed to promote the health of markets, government revenue and the public. *Tobacco Control*, 19(5), 423-430. http://dx.doi.org/10.1136/tc.2009.034470

Ham, LS, & Hope, DA. 2003. College students and problematic drinking: a review of the literature. *Clinical Psychology Review*, 23(719-59). https://doi.org/10.1016/S0272-7358(03)00071-0

Ho, L. M., Schafferer, C., Lee, J. M., Yeh, C. Y., & Hsieh, C. J. 2018. Raising cigarette excise tax to reduce consumption in low-and middle-income countries of the Asia-Pacific region: a simulation of the anticipated health and taxation revenues impacts. *BMC public health* 18(1), 1187. Retrived from https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-6096-z

Hiscock, R., Branston, J. R., McNeill, A., Hitchman, S. C., Partos, T. R., & Gilmore, A. B. 2018. Tobacco industry strategies undermine government tax policy: evidence from commercial data. *Tobacco Control* 27(5), 488-497. https://doi.org/10.1136/tobaccocontrol-2017-053891

Hu, T. W., Sung, H. Y., & Keeler, T. E. 1995. Reducing cigarette consumption in California: tobacco taxes vs an anti-smoking media campaign. *American Journal of Public health* 85(9), 1218-1222. https://doi.org/10.2105/ajph.85.9.1218

Jamison, J & Myers, LB. 2008. Peer-group and price influence students drinking along with planned behaviour. *Alcohol and Alcoholism*, 43(4), 492-497. https://doi.org/10.1093/alcalc/agn033

Joshi, Y., & Rahman, Z. 2015. Factors affecting green purchase behaviour and future research directions. *International Strategic Management Review*, 3(1-2), 128-143.https://doi.org/10.1016/j.ism.2015.04.001

Kitchen, H., McMillan, M. & Shah, A. 2019. Local Income, Sales, and Environmental Taxes. In *Local Public Finance and Economics* (pp. 331-361). Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-21986-4_10

Kovaleva, T.M., Valieva, E.N. & Popova, E.V. 2020. Characteristics of Russian Government Financial Resources: Historical Overview and the Situation Under Digital Economy. In *Digital Transformation of the Economy: Challenges, Trends and New Opportunities* (pp. 635-645). Springer, Cham. https://doi.org/10.1007/978-3-030-11367-4 61

Laković, T., Mugoša, A., Čizmović, M. & Radojević, G., 2019. Impact of Taxation Policy on Household Spirit Consumption and Public-Finance Sustainability. Sustainability, 11(20), 5858. https://doi.org/10.3390/su11205858

Lantz, P. M., Jacobson, P. D., Warner, K. E., Wasserman, J., Pollack, H. A., Berson, J., & Ahlstrom, A. 2000. Investing in youth tobacco control: a review of smoking prevention and control strategies. *Tobacco Control*, 9(1), 47-63. https://10.0.4.112/tc.9.1.47

Levy, D. T., Chaloupka, F., & Gitchell, J. 2004. The effects of tobacco control policies on smoking rates: a tobacco control scorecard. *Journal of Public Health Management and Practice*, 10(4), 338-353. http://dx.doi.org/10.1136/tc.9.1.47

Levy, D. T., Yuan, Z., Luo, Y., & Mays, D. 2018. Seven years of progress in tobacco control: an evaluation of the effect of nations meeting the highest level MPOWER measures between 2007 and 2014. *Tobacco Control*, 27(1), 50-57. http://dx.doi.org/10.1136/tobaccocontrol-2016-053381

Luong, L. & Vu, L.H., 2020. Impacts of excise taxation on non-alcoholic beverage consumption in Vietnam. *Sustainability*, 12(3), 1092.https://doi.org/10.3390/su12031092

Nguyen, H.T.T., Giang, L.T. & Pham, T.N. 2020. Impacts of higher tobacco tax on output and employment in Vietnam. *Journal of Economics and Development*, 22(1), 167-182. https://doi.org/10.1108/JED-11-2019-0058

Nwadialor, E.O. and Agbo, E.I., 2020. Increasing Tax-To-Gdp Ratios Of Sub Sahara-African Countries: Lessons From Advanced Economies. *International Journal of Research in Management Fields*, 4(1), pp.17-38. https://dx.doi.org/10.26808/rs.rmf.v4i1.02

Mackay, J., Ritthiphakdee, B., & Reddy, K. S. 2013. Tobacco control in Asia. *The Lancet* 381(9877), 1581-1587. https://doi.org/10.1016/S0140-6736(13)60854-5

Quiggin, J. & Wang, J., 2019. Unscrambling the toll road egg. *Economic Analysis and Policy*, 61, 29-38. https://doi.org/10.1016/j.eap.2018.07.002

ISSN 2345-0282 (online) http://jssidoi.org/jesi/2020 Volume 8 Number 1 (September) http://doi.org/10.9770/jesi.2020.8.1(74)

Ranson, M. K., Jha, P., Chaloupka, F. J., & Nguyen, S. N. 2002. Global and regional estimates of the effectiveness and cost-effectiveness of price increases and other tobacco control policies. *Nicotine & Tobacco Research* 4(3), 311-319. https://doi.org/10.1080/14622200210141000

Rahman, M. S., Mondal, M. N. I., Islam, M. R., Rahman, M. M., Hoque, M. N., & Alam, M. S. 2015. Determinant factors of tobacco use among ever-married men in Bangladesh. *Drug, Healthcare and Patient Safety*, 7, 77. https://doi.org/10.2147/DHPS.S80864

Ross, H., Tesche, J. & Vellios, N., 2017. Undermining government tax policies: common legal strategies employed by the tobacco industry in response to tobacco tax increases. *Preventive Medicine*, 105, S19-S22. https://doi.org/10.1016/j.ypmed.2017.06.012

Rosser, A. 2015. Contesting tobacco-control policy in Indonesia. *Critical Asian Studies*, 47(1), 69-93. https://doi.org/10.1080/14672715.2015.997083

Schafferer, C., Yeh, C.Y., Chen, S.H., Lee, J.M. & Hsieh, C.J. 2018. A simulation impact evaluation of a cigarette excise tax increase on licit and illicit cigarette consumption and tax revenue in 36 European countries. *Public Health*, 162, 48-57. https://doi.org/10.1016/j.puhe.2018.05.017

Shang, C., Lee, H.M., Chaloupka, F.J., Fong, G.T., Thompson, M., & O'Connor, R.J., 2019. Association between tax structure and cigarette consumption: findings from the International Tobacco Control Policy Evaluation (ITC) Project. *Tobacco Control*, 28(Suppl 1), 31-36. http://dx.doi.org/10.1136/tobaccocontrol-2017-054160

Smith, J., Thompson, S., & Lee, K. 2019. Both Sides of the Argument? A critical review of existing evidence on the illicit trade in tobacco products in Canada. *Tobacco Control* http://dx.doi.org/10.1136/tobaccocontrol-2018-054687

Sun, X., Xiong, A., Li, H., Westlund, H. & Li, Y., 2019. Does social capital influence small business entrepreneurship? Differences between urban and rural China. *The Annals of Regional Science*, pp.1-19. https://doi.org/10.1007/s00168-019-00922-1

Sugiyama, Y. & Koonsed, P. 2019. International recycling firm joint ventures and optimal recycling standards. *Environmental Economics and Policy Studies*, 21(3), 427-449.https://doi.org/10.1007/s10018-019-00237-7

Sunley, E. M., Yurekli, A., & Chaloupka, F. J. 2000. The design, administration, and potential revenue of tobacco excises. *Tobacco Control in Developing Countries*, 409-26. Retrieved from https://pdfs.semanticscholar.org/ca85/0b1da8743a38e0b4458a2598a6089a97cb9d.pdf? ga=2.160913405.1196003397.1567994753-1993375695.1567994753

Van Hedger, K., Kushner, M. J., Lee, R., & de Wit, H. 2018. Oxytocin reduces cigarette consumption in daily smokers. *Nicotine and Tobacco Research*, 21(6), 799-804. https://doi.org/10.1093/ntr/nty080

Wakefield, M., & Chaloupka, F. 2000. Effectiveness of comprehensive tobacco control programmes in reducing teenage smoking in the USA. *Tobacco Control* 9(2), 177-186. http://dx.doi.org/10.1136/tc.9.2.177

ISSN 2345-0282 (online) http://jssidoi.org/jesi/2020 Volume 8 Number 1 (September) http://doi.org/10.9770/jesi.2020.8.1(74)

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