

# The Underminers: Booming Illicit Trade of Roll Your Own and Waterpipe Tobacco in Turkey

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## Abstract

**OBJECTIVES:** The aim of this study is to specify the reasons and extents of illicit Roll-Your-Own (RYO) and waterpipe tobacco (WPT) markets which broke out in Turkey and to determine the destruction of these markets over the effectiveness of main tobacco control measures, the effect of this destruction on increase in tobacco use and the measures that can be taken.

**MATERIALS AND METHODS:** Reliable data about illicit trade are quite limited. This study was prepared through using the recommended methods on illicit trade in "Methods for Evaluating Tobacco Control Policies" published by the International Agency For Research On Cancer (IARC) and "Understand, Measure, and Combat Tobacco Smuggling" published by the World Bank.

**RESULTS:** RYO and WPT markets are almost totally illicit in Turkey. These markets serve to tobacco outbreak by increasing total tobacco use far beyond the official data through its size surpassing 30% of total consumption and they have begun to invalidate all of the principle tobacco control measures by hindering and undermining them.

**CONCLUSION:** In order to implement tobacco control measures effectively in Turkey, these illicit markets must be included in system by doing necessary regulations promptly. It is strongly needed that illicit RYO and WPT production and trade should be described as newly emerged threat areas in tobacco control literature, since other countries may suffer from similar problems.

**KEYWORDS:** Illicit trade, tobacco control, raw tobacco, roll your own tobacco, waterpipe tobacco

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## INTRODUCTION

Turkey's The National Tobacco Control Programme Action Plan (NTCP-AP) came into force between 2008-2012 and produced positive results. The country was declared as the first one to employ all six important MPOWER measures for tobacco control introduced by WHO in 2015 [1].

A notable progress in that period was the decrease in domestic sales of cigarettes due to tax increase, reducing cigarette use [2, 3]. In accordance with the objective of NTCP-AP, the tax on cigarettes was increased to over 80%; consequentially, cigarette sales dropped to 91.22 million in 2011 from 107.55 billion in 2009 [4].

However, in 2010, illicit production and the trade of "roll your own tobacco" (RYO) broke out, posing a new public health hazard. The raw tobacco, used specifically for RYO, is grown and sold illegally in Turkey. RYO is made using fine-cut raw tobacco and empty cigarette tubes or cigarette paper. While empty cigarette tubes were legally manufactured and sold in Turkey, cigarette papers were not and were smuggled from other countries. It was determined in an area study conducted in 2013 that illegal RYO market reached 13.75 million kg, which corresponded to 14% of legal cigarette market [5]. It was an approaching risk as pointed out in the report published by the state in 2006 [6].

While the legal RYO sales were just 191.7 tonnes in 2016, quantity of sales of empty cigarette tubes filled with illicit fine-cut tobacco were 18.99 billion sticks in Turkey [4]. In each RYO cigarette, 0.40-0.75 g tobacco is used according to ISO 15592-3:2008 and Gallus et al. [7] An estimated 14.24 million kg of tobacco was sold in 2016 going by the use (0.75 g) and data of sales of empty cigarette tubes. The sales of empty cigarette tubes increased to 27.5 billion sticks in 2017 [4] which corresponds to 20.6 million kg of RYO tobacco use, while legal sales of RYO are just 364.8 tonnes [4]. This data clearly reflects that almost all of RYO market is illegal.

Some other sources stated that the total amount of cigarettes consumed in Turkey including illicit RYO and smuggled cigarettes (cheap whites and original cigarettes manufactured in other countries) in 2015 was 103.21 billion sticks of which, the legal sales were between 125-130 billion sticks [8, 9].

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Simultaneously, a surge in illegal sales of aromatized waterpipe tobacco products (WPT) was experienced [10]. Illegal WPT consists of both unauthorized domestic production and that smuggled from other countries. The use of WPT has recently become widespread, particularly among the youth across the globe [11, 12].

The WPT use rate was 0.8% in Turkey in 2012 [13]. The legal sales of WPT were only 10.3 tonnes in 2016 [4]. However, an Evrengil study calculated the annual use as 1.6 million kg [10]. Therefore, almost all of the WPT market in Turkey is illicit.

While the size of the smuggled cigarette market is unknown, Kaplan et al. [14] stated in 2017 that cigarettes without banaderol correspond to 12.1% of the legal market.

In light of these events, Turkey, even as one of the most successful countries in controlling tobacco, has regressed to the category of low-point countries with 58 points, according to the index of tobacco control sustainability (ITCS) in 2016 [15]. On the other hand, the records from the Chamber of Industry show that the cigarette industry suffered no loss in earning after 2010 even as the taxes increased and their sales decreased [8]. During 2011–2017, while the sales of cigarettes in the domestic market increased by 14.2%, the sale revenues of the cigarette industry increased by 56%. Another important indicator is total cigarette exports which increased by 51% as the sale revenues grew 48.5% in the same period [4].

It is considered that the NTCP-AP, did not produced the expected positive results by 2017. In this regard, the objective of this study is to define the reasons, market structure, and size of the illicit market of RYO and WPT and their effect on implemented tobacco control measures in terms of the effects of the failure of NTCP-APs.

## MATERIALS AND METHODS

In the studies called “Methods for Evaluating Tobacco Control Policies” published by The International Agency for Research On Cancer (IARC) [16] and “Understand, Measure, and Combat Tobacco Smuggling” published by The World Bank [17], six different methods are recommended as sources data collection related to evaluating the illicit trade of to-

bacco products. However, as Joossens et al. [18] stated, it is important that the estimation employs cross-verification with the data acquired from different methods and sources as studies related to reliability of every tool of collecting data have to be conducted.

There is a serious limitation to the data that could be used in this study because official data or research about this illicit market is not declared to the public. It was thought that to predict the size and operation of RYO market, a field research would be appropriate in an area where raw tobacco, used for RYO, is illicitly grown.

In this regard, Çelikhan district, which has the highest number of RYO tobacco growers according to data from the Ministry of Agriculture, was chosen for the study. Face-to-face surveys were done with ten growers from every one of three quarters and nine villages and 120 illicit growers in total. The survey form consisted of 57 questions on production processes of illicit raw tobacco, agricultural techniques, demographics, economic profile of participants, purchase of this raw tobacco by middlemen, sale of tobacco to illicit traders, preparation of fine-cut tobacco, pricing, marketing, and size and structure of the illicit market. This study is a single-field study carried out on the structure and operation of illicit RYO market in Turkey. It was concluded in 2012. The findings regarding the size of the illicit RYO market have been revised in 2015 and 2017 by interviewing the relevant authorities again.

Although the ethical principles of The Declaration of Helsinki was taken into consideration, ethical board approval was not obtained for this study since the main purpose of the survey was to collect data about the illicit structure of RYO tobacco market rather than personal information. Data obtained from the research were not used except for the purpose of study. After the participants were informed about the questionnaire, volunteer adult participants who agreed to fill the questionnaire were included in the study. In this regard, informed consent was not taken.

An estimation available on the potential size of the illicit WPT market in Turkey was found in only one study [10]. There was no field study on the WPT market. Within this scope, as recommended by the IARC, the data acquired from the interviews done with companies carrying on business in WPT market, reliable people and experts working in organizations and public institutions were included in this study.

To evaluate the data acquired from the surveys, percent values were assessed by using SPSS package software, simple statistical methods like arithmetic mean, and five-point Likert's scale.

## RESULTS

### The Illicit Market of RYO Tobacco

The most important reason for the high demand for illicit RYO is the belief that these are cheaper and less harmful to health than legal cigarettes [19, 20]. The price of a packet of cigarettes obtained from illicit RYO may be two to ten times cheaper than legally sold cigarettes [6, 19]. The cheapest

### MAIN POINTS

- This is the first study regarding to illicit markets of RYO and WPT in Turkey and the world.
- It was found that RYO and WPT markets are almost totally illicit in Turkey.
- RYO and WPT use have become an epidemic in Turkey, undermining principal tobacco control policies and increasing tobacco addiction, especially among young people.
- Illicit WPT and RYO markets in Turkey have caused a serious setback in tobacco control policies
- For a sustainable success in the field of tobacco control in Turkey, RYO and WPT markets must be included in the system by minimizing their illicit trade.

illicit RYO is between 6-7 USD/kg. Approximately 1.300 sticks (65 packets) of cigarettes could be produced from 1 kg of tobacco when it is considered that 0.75 g of tobacco is used per stick. The price of one box of empty cigarette tubes is 1 USD, and illicit RYO is 8 USD/kg, i.e., the cost of one packet of cigarette is 0.14 USD. The selling price of one packet of the cheapest legal cigarette was 1.25 USD in August 2018.

According to the field study, the number of the raw tobacco growers and the amount of the production are showed in Table 1. When this amount is compared with the legal RYO sales by years (Figure 1) [4]; it is seen that almost all of the RYO market is illicit.

Table 2 is a Likert's scale that reflects the answers of the illicit leaf tobacco growers. According to the growers, the increase in the price of legal cigarettes is the first reason behind the increase in raw tobacco production for RYO (1.14). The second reason was high demand of consumers for illicit RYO (2.08). The third and the fourth reasons expressed by the growers were that raw tobacco prices were higher than other agricultural products and brought them a higher income, (3.07) and there was no other agricultural product that was an alternative to raw tobacco (3.98). National tobacco monopoly TEKEL's withdrawal from tobacco purchasing was the least agreed approach (4.74) (Table 2).

**Table 1.** Amount of illicit raw tobacco production for RYO in Turkey (2013)

Production Center	Number of growers		Amount of raw tobacco production	
	n	%	Kg	%
Çelikhan	3.000	14	1.600.000	12
Adıyaman Center	2.500	12	1.400.000	9
Malatya-Doğanşehir	1.000	4	750.000	6
Bitlis Center-Hizan-Mutki	7.000	32	4.000.000	29
Diyarbakır-Kulp-Lice-Mardin-Kızıltepe-Mazıdağı-Savur	3.500	17	2.500.000	18
Muş Kızılağaç - Bingöl-Solhan	3.500	16	2.500.000	19
Hatay Yayladağı	1.000	5	1.000.000	7
<b>TOTAL</b>	<b>21.500</b>	<b>100</b>	<b>13.750.000</b>	<b>100</b>

**Table 2.** Reasons for increase in raw tobacco production for RYO in Turkey

	X-
TEKEL's withdrawal from purchasing raw tobacco	4.74
Increase in cigarette prices	1.14
Absence of agricultural product available as an alternative to raw tobacco for RYO	3.98
High demand of consumers for illicit RYO	2.08
Price of raw tobacco bringing higher income than other agricultural products	3.07
1. Strongly agree 2. Significantly agree 3. Agree 4. Neutral 5. Strongly disagree	

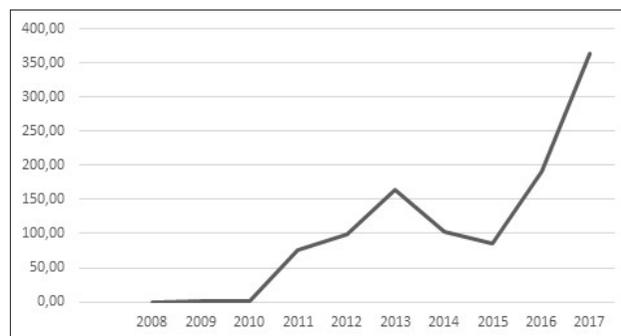
In the field study, it was determined that in the production stage of raw tobacco, agricultural pesticides were used 8-10 times more than normal. According to interviewees, pesticides make illicit RYOs much more harmful than legal cigarettes. It was understood that after purchasing from growers, raw tobacco was cut at unlicensed factories at first and then exposed to some processes via chemicals such as sulfuric acid whose content is known to singe the color of tobacco for increasing its attractiveness.

It was determined that average field size of raw tobacco for RYO was 3.520 m<sup>2</sup> (3,52 daa) and average productivity was 160.25 kg. Raw tobacco for RYO sold at 14.5 USD in 2016 and constituted an annual income of 3.52 \* 160.25 \* 14.5=8,179.16 USD.

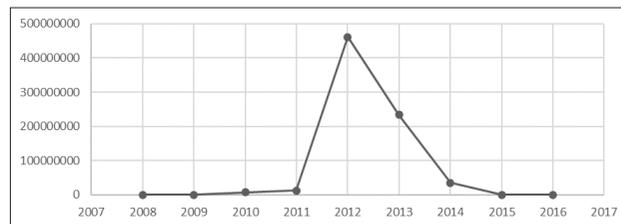
The number of smuggled empty cigarette tubes that were seized by security forces in the years 2012 and 2013 increased enormously, and this is important data related to increasing RYO use (Figure 2) [22]. However, that amount decreased later on because the legal sales of these tubes in retail started in 2015, and no tubes were seized in 2016.

Any smuggled cigarette tubes not being seized before 2010 could be an important indicator that the illicit RYO market started to grow from 2010. On the other hand, it is stated that smuggling of cigarettes started to increase after 2010 (Figure 3) [22].

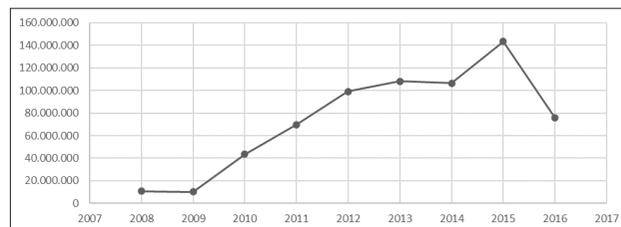
Another important reason of the growth of illicit RYO market is no premium being paid for the seized raw tobacco while



**Figure 1.** Legal sales of RYO in Turkey by years (1000 kg) [4]



**Figure 2.** The number of seized empty cigarette tubes (2008-2016) [22]



**Figure 3.** The number of seized cigarette packages (2008-2016) [22]

security forces are paid a premium based on the amount of the seized smuggled cigarettes.

Inadequacy of penalties can be said to be another reason. When a calculation was made based on 12 USD per kg for the calculated 20.6 million kg illicit RYO in 2017, the total revenue of illicit market corresponds to almost 250 million USD. The RYO demands of almost four million Syrian refugees in Turkey is another factor contributing to the increase of illicit RYO use because of low price and common smoking flavor [9].

### The Illicit Market of WPT

Aromatized WPT gained popularity across the globe as American blend cigarettes enabled the globalization of cigarettes [23]. In addition to this, there are other important factors that affect the structure and growth of WPT market globally and in Turkey.

There are more than 6,000 waterpipe businesses that operate via the internet according to Evrengil. The adolescent population in Turkey was 54,548.000 in 2012 and the rate of waterpipe use in the adolescent population was 0.8% [13]. The number of WPT users could be calculated as 440.000. However, considering that 3% is a more accurate calculation for today, the number of users would be 1,650.000 and the total use would be 1,606 tonnes year if they use one WPT every day. If the population uses four waterpipes in a week, 915 tons tonnes would be used in a year. The amount of legally sold WPT in Turkey was just 10.3 tonnes in 2016 (Figure 4) [4].

Using a different calculation, a waterpipe cafe selling 30 waterpipes using on an average 25 g will require 750 g of WPT a day and 270 kg of WPT in a year. It could be said then that a minimum of 6,000 businesses \*270 kg=1,620.000 kg of total use.

Additionally, WPT use in 4 and 5 star hotels by tourists and almost four million Syrian refugees should be considered. Market experts state that there are waterpipe cafes in a minimum of 1,000 hotels. If it is considered that 25% of the total refugees use one WPT a week, then 1,000.000 refugees \* 25 g \* 52 weeks=1,300.000 kg/year. The total amount would be much more when the consumption of all the hotels are added. The total real size of the market will likely be more than three million kg when the illicit WPT sales done in 4 and 5 stars hotels and those bought by Syrian refugees are added to the amounts acquired via both methods.

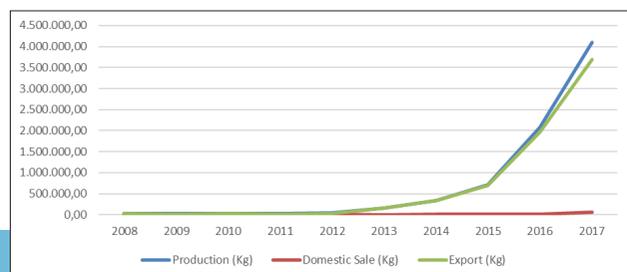


Figure 4. Amount of legal production, domestic sales and export of WPT (kg) [4]

Another important factor leading to the increase in WPT use in Turkey is that since hookah is considered as a part of the traditional domestic and national culture dating back to the Ottoman Empire, using WPT among conservative people has become very popular in recent years than ever before.

The reasons for the growth of the illicit WPT market are different from the illicit cigarettes and RYO. Users turn to the illicit cigarettes and RYO since they are much cheaper than the legal products. Legal WPTs sold at 14.5 USD/kg are available in the market. An average unit of 25 g at a rate of 0.38 USD could be used in 40 waterpipes. The cheapest price of a waterpipe is between 2.5-3.5 USD in the cafes where students go often. In the interviews done with the waterpipe cafe owners, they stated that the illegal WPT prices-both illegally manufactured in Turkey and smuggled ones-vary from 5 USD/kg to 17 USD/kg in general. However, the price of WPTs that are smuggled with their original boxes from abroad and constituting 60% of the market which are preferred much more by the users, is between 10-12 USD/kg. The cost of a waterpipe is 0.13 USD in a cafe which uses the cheapest smuggled WPT.

However, the mentioned cost differentiation between legal and illegal products is not worth the legal risks taken by using the smuggled products. In this context, it does not make sense and it is clear that the reason for illicit WPT use in waterpipe cafes is not to earn a high profit. In the interviews, the waterpipe cafe owners stated that the main problem is that the customers do not like the taste of legally produced WPTs in Turkey. The cafe owners feel that the quality of the smuggled WPTs is higher and it is tastier than the domestically produced legal WPTs; and therefore, they sell the smuggled ones.

## DISCUSSION

Illicit trade poses a serious threat to public health because it increases access to cheaper tobacco products, fueling the tobacco epidemic and undermining tobacco control policies [24]. The study findings made by the WHO reflects the situation in Turkey accurately.

A total of 106.22 billion cigarettes and 27.5 billion empty cigarette tubes were legally sold in Turkey in 2017 [4]. When 6.66 billion cigarettes made with RYO with leaf cigarette paper predicted 5 million kg and 12.85 billion smuggled cigarettes sticks are included [14], the total illicit market rate reaches 30.7% of the total products, both illicit and legal consumed. With regard to RYO, this situation is specific to Turkey and not observed in other countries. On the other hand, the risk for the illicit RYO users increases incrementally due to the high amount of agricultural pesticides and unknown chemicals used during the production of RYO. From the point of tobacco growers, it is not possible to earn such a huge amount of money with any other agricultural product, which explains why the growers continue to take such a risk. Likewise, due to the economic size of the illicit market, fines are not suitable penalties for the illegal actors directing the market.

Within this scope, it could be said that the amount of illicit RYO production and use is destroying all the main tobacco control measures, ruining the operation of the legal tobacco

leaf market, and causing legal tobacco leaf growers to turn to illicit trade.

Since almost all WPT market is illicit in Turkey, the situation is quite different from other countries. According to estimates, the total market size is likely to be more than 3 million kg. In any case, it is clear that the amount of 10,360 kg of legally sold WPT in Turkey in 2016 was quite far from meeting the requirements of the waterpipe cafes. In summary, WPT use has become an epidemic in Turkey, undermining principal tobacco control policies and increasing tobacco addiction, especially among young people. Thus, illicit WPT and RYO markets in Turkey have caused a serious setback in tobacco control policies.

In the Tobacco Control Final Declaration of the 19th Annual Congress of the Turkish Thoracic Society made in 2016 [8], it was determined that the achievements that resulted from the policies being applied since 2008 could disappear due to an increase in cigarette use again. In a study titled "Assessment of Harmonization of Framework Convention on Tobacco Control in Turkey" in 2017 [25], faults in regulation working for decreasing the demand after the 2011-2016 period were observed, and the inspection and enforcement activities became ineffective. According to another study in the same year, Turkey's leadership started to get weaker and tobacco control policies could not achieve the goals [26]. Therefore, Turkey was placed among the bottom countries with 58 points in the ITCS in 2016 [15] and regressed to the 9th place on TCS in the same year [27].

An estimate of the total illicit economy in Turkey in 2016 was 27.8% which is larger than the EU's average of 18.3%, which means illegal means are highly common in all domestic markets, undermining the country's economy [28]. There is a general inadequacy in this regard which negatively affects the tobacco market as well. Hence, taking suitable measures at the macroeconomic level is important in order to decrease the level of illicitness in tobacco market.

Other important measures should be implemented such as effective border and customs security to stop smuggling, increasing countrywide inspections to stop illegal production and sales points within WPT cafes, raising awareness about the risks to public health from illicit products, strengthening security forces to tackle illegal organizations, and supporting economically viable alternatives to tobacco growing together with other macroeconomic measures.

It should also be considered that since consumption centered tobacco control policies do not work globally and nationwide, measures relating to limitation of production could also be considered from now on for more effective tobacco control implementation.

For a sustainable success in the field of tobacco control in Turkey, RYO and WPT markets must be included in the system by minimizing their illicit trade. After RYO and WPT markets are recorded, smokers will be able to use legal products. The production processes, sale, and use will become measurable and traceable; observance and inspection activities can be conducted, and tobacco control measures will be brought in

practice. Therefore, the two most important undermining factors and hindrances to sustainable tobacco control policies in Turkey will be significantly eliminated.

Since there is a serious lack of study regarding illicit trade and production of raw tobacco, RYO, and WPT in the tobacco control literature, more research is promptly needed.

Although the ethical principles of The Declaration of Helsinki was taken into consideration, ethical board approval was not obtained for this study since the main purpose of the survey was to collect data about the illicit structure of RYO tobacco market rather than personal information. After participants were informed about the questionnaire, volunteer adult participants who agreed to fill out the questionnaire were included in the study. Informed consent was not obtained.

**Ethics Committee Approval:** Ethics Committee approval was not obtained for this study since the main purpose of the survey was to collect data about the illicit structure of RYO tobacco market rather than personal information.

**Informed Consent:** Informed consent was not taken. After participants were informed about the questionnaire, volunteer adult participants who agreed to fill out the questionnaire were included in the study.

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**Conflict of Interest:** The authors have no conflicts of interest to declare.

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