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

Running head: The Illicit RYO and Waterpipe Tobacco Markets in Turkey

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Abstract

Objective: 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.

Material and Methodology: 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.

**Key words:** Illicit trade, tobacco control, raw tobacco, roll your own tobacco, waterpipe tobacco.

**Introduction**

Turkey began to get successful results after The National Tobacco Control Programme Action Plan (NTCP-AP) which was entered into force for 2008-2012 period and was declared as the first country which applied the most important six measures of tobacco control in scope of MPOWER in the world in 2015 by WHO [1].

The most positive progress in that period was the decrease in the amount of domestic sales of cigarette, in parallel with the approach that tax increases reduce the amount of cigarette use [2-3]. In accordance with the objective of NTCP-AP that the taxes applied to cigarettes would surpass 80%; after increasing of taxes cigarette sales dropped 91.22 million in 2011 from 107.55 billion in 2009 [4]. However, as of 2010, illicit production and trade of roll your own tobacco (RYO) broke out as a new public health hazard an unprecedented scale. The raw tobacco, which is used specifically for RYO, is grown and sold illicitly in Turkey. Smokers makes RYO by using those fine-cut raw tobaccos and empty cigarette tubes or cigarette paper. While empty cigarette tubes were legally manufactured and sold in Turkey, cigarette papers for RYO were not manufactured legally but smuggled from other countries. It was determined that illicit RYO market reached 13.75 million of kilogram corresponding to the 14% of legal cigarette market, in an area study conducted in 2013 [5]. It was defined as an approaching risk pointed out in the report published by the state in 2006 [6].

While the amount of legal RYO sales was just 191.7 tonnes in 2016, the amount of sales of empty cigarette tubes which is filled with illicit fine-cut tobacco were 18.99 billion in Turkey [4]. In a RYO cigarette, smokers use 0.40-0.75 gram tobacco according to ISO 15592-3:2008 and Gallus et al [7]. 0.75 gram use and sales of empty cigarette tubes in 2016 corresponds to 14.24 million kilograms tobacco used as RYO. The sales of empty cigarette tubes increased to 27.5 billion in 2017 [4] which corresponds to 20.6 million kilograms RYO tobacco use, while legal sales of RYO just 364.8 tonnes [4]. Legal/illicit sale figures clearly reflect that RYO market is almost totally illicit.

Some other resources stated that the total amount of cigarette consumed in Turkey including illicit RYO and smuggled cigarette (cheap whites and other original cigarettes manufactured in another country) in 2015 was (103,21 billion of them were legal sales) between 125 – 130 billion [8-9].

Other event which broke out in the same period was observed as an outbreak in the illegal sales of aromatized waterpipe tobacco products (WPT) [10]. Illegal WPT consists of both unauthorized domestic production and original ones smuggled from other countries. Use of the WPT has recently become widespread particularly among the youth in the world and become an outbreak [11-12].
The WPT use rate was 0.8% in Turkey in 2012 [13]. The amount of legal sales of WPT was only 10.3 tonnes in 2016 [4]. However, the total amount annual use was calculated as 1.6 million of kilogram in a research done by Evrengil [10]. Therefore, it could be stated that almost all of the WPT market in Turkey is illicit.

When the size of the smuggled cigarette market, however there is not an official data, in 2017 Kaplan et al. published that the rate of cigarettes without banderol corresponds to 12.1% of the legal market [14].

In the light of all these events; although Turkey became one of the most successful countries in tobacco control, she regressed to the category of low-point countries via 58 points according to the index of tobacco control sustainability (ITCS) in 2016 [15]. On the other hand, it is understood from the records of the Chamber of Industry that there was no loss of earnings of the cigarette industry after 2010 of which the year of were taxes increased although their sales decreased [8]. From the year 2011 to 2017, while the amount of cigarettes, which is sold in domestic market, increased 14.2%, the total sale revenues of the cigarette industry increased 56% in the same period. The other important indicator is total cigarette exportation which increased 51% as quantity, 48.5% as sale revenues in the same period [4].

It is considered that the NTCP-AP, which was entered into force as of 2008, has not produced the required ultimate positive results by the year 2017. In this regard, the objective of the study is that to define the reasons, market structure and size of the illicit market of RYO and WPT and their effects’ on implemented tobacco control measures, in terms of the effects of the failure of NTCP-APs.

Material 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], it is recommended six different methods as a source of collecting data related to evaluating the illicit trade of tobacco products. However; as Joossens et al. stated, it is required and important that estimation is done by doing cross check of the data acquired from different methods and sources as possible because studies related to reliability of every tool of collecting data need to be done [18].

There is a serious limit related to the data which could be used in this study because there are not official data or research declared to the public by the state about the illicit market of these products. Within this scope, it was thought that a field research would be appropriate to be done in an area where raw tobacco, which is used for RYO, is illicitly grown intensely to make a prediction about the size and operation of RYO market at first.

In this regard, the study was done in district called Çelikhan that has the highest number of RYO tobacco growers according to data of Ministry of Agriculture. Face-to-face surveys were done with ten growers from every one of three quarters and nine villages; 120 illicit growers in total. Survey form
consists of 57 questions on production processes of illicit raw tobacco, agricultural technics, demographic and economic profile of illicit tobacco growers, purchasing of illicit raw tobacco from grower by middlemen, selling of tobacco to illicit trader, preparation of fine-cut tobacco, pricing, marketing structure, size and structure of the illicit market. This study is the single field study carried out on the structure and operation of illicit RYO market in Turkey. It was concluded in 2012. The findings regarding to size of the illicit RYO market have been revised in 2015 and 2017 by interviewing with the relevant authorities again.

Although the ethical principals 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 study purpose. After participants were informed about the questionnaire, volunteer adult participants who agreed to fill out the questionnaire were included in the study. In this regard, informed consent form 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 is no field study on 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 person and experts working in organisations and public institutions were included in this study.

To evaluate the data acquired from the surveys; percent values were assessed through using SPSS package software, simple statistical methods like arithmetic mean and five point likerts scale.

Results

The Illicit Market of Roll Your Own Tobacco

The most important reason of 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 package of cigarette obtained from illicit RYO may be 2-10 times cheaper than the legal cigarettes [6][19]. The cheapest illicit RYO is between 6 – 7 USD/kg. Approximately 1.300 sticks = 65 packages of cigarettes could be produced when it is considered that 0.75 gram of tobacco from 1 kilogram of tobacco is used per stick. When it is calculated that the price of one box of empty cigarette tube is 1 USD and illicit RYO is 8 USD/kg; the cost of one package of cigarette is 0,14 USD. The sale price of one package of the cheapest legal cigarette is 1,25 USD in August in 2018.

Table 1. The Amount of Illicit Raw Tobacco Production for RYO in Turkey (2013)

<table>
<thead>
<tr>
<th>Production Center</th>
<th>The Number of Growers</th>
<th>The Amount of Raw Tobacco Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Çelikhan</td>
<td>n: 3.000, %: 14</td>
<td>Kilogram: 1.600.000, %: 12</td>
</tr>
</tbody>
</table>

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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); it is seen that almost all of the RYO market is illicit.

**Figure 1. Legal Sales of RYO in Turkey by Years (1000 kg)**

Source: [4]

Table 2 is a Likert scale that reflects the answers of the illicit leaf tobacco growers. According to the growers, the increase in prices 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 are that raw tobacco prices are higher than other agricultural products, its bringing higher income (3.07) and there is not any agricultural product which could be alternative to the raw tobacco (3.98). National tobacco monopoly TEKEL’s withdrawal from tobacco purchasing was the least agreed approach (4.74) (Table 2).

**Table 2. The Reasons of Increase in Raw Tobacco Production for RYO in Turkey**

| Source: [5] |

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In the field study, it is determined that agricultural pesticides were used 8-10 times more than they should be normally used in the production stage of raw tobacco. According to interviewees, the amount of pesticides makes illicit RYOs much more harmful than legal cigarettes. It was understood that after purchasing from growers, raw tobacco were cut in the unlicenced factories at first, then are exposed to some processes via some chemicals called acid especially sulphur but whose content is not known to singe the color of tobacco for increasing attractiveness of them.

It was determined that average area size of raw tobacco for RYO growers is 3,52 decare and average productivity is 160,25 kilograms in the field research. Raw tobacco for RYO sold at 14.5 USD in price in 2016 crop year, it constitutes an annual income as 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, that is important data related to increasing RYO use (Figure 2). However, that amount decreased later on because the legal sales of these tubes at retail started in 2015. Any amount of tubes were not seized in 2016.

**Figure 2. The Number of Seized Empty Cigarette Tubes (2008 – 2016)**

![Figure 2](image-url)
Any smuggled cigarette tubes not being seized before 2010 could be an important indicator that illicit RYO market started to grow from the year of 2010. On the other hand, it is stated that smuggling of cigarettes started to increase after 2010 (Figure 3) [22].

**Figure 3. The Number of Seized Cigarette Packages (2008 – 2016)**

Source: [22]

Other important reason of the growth of illicit RYO market is any premium not being paid for seized raw tobacco while security forces are paid premium based on the amount of the seized smuggled cigarettes.

Inadequacy of penalties can be said as another reason. When a calculation is made based on 12 USD per kilogram for the calculated 20.6 million kilogram illicit RYO in 2017, the total revenue of illicit market corresponds to almost 250 million USD.

The RYO demands of almost four million of Syrian refugees in Turkey is another factor of increase in illicit RYO use because of low price and common smoking flavour [9].

**The Illicit Market of Waterpipe Tobacco Products**

Aromatized WPT caused an outbreak in the world as American blend cigarettes enabled the globalization of cigarettes [23]. In addition to reflections of outbreak, there are some other important issues which affects the structure and growth of WPT market and in Turkey.

There are more than 6.000 waterpipe offer businesses via internet in a study by Evrengil. The adolescent population in Turkey was 54,548,000 in 2012 and the rate of waterpipe use in adolescent population was 0,8% [13]. The number of WPT users could be calculated as 440,000. However; thinking that 3% is more correct for today, the number of users would be 1,650,000 and total use would be 1,606 tons/year if they use one WPT everyday. If population uses four waterpipes in a week, 915 tons of total use would occur in a year. Legally sold WPT amount in Turkey is just 10.3 tonnes in 2016 (Figure 4).
Through a different calculation; a waterpipe cafe selling 30 waterpipes via using averagely 25 grams will require 750 grams of WPT a day and 270 kilograms of WPT in a year. It could be said that there are minimum 6.000 businesses * 270 kilogram = 1.620.000 kilogram of total use.

On the other hand, WPT use in 4 and 5 stars hotels by tourists and almost four million of Syrian refugees should be taken into account. Market experts state that there are waterpipe cafes in minimum 1.000 hotels. Through this approach, if it is considered that a 25% of total refugee use one WPT in a week, 1.000.000 refugee * 25 grams * 52 week = 1.300.000 kilogram/year. The total amount will be much more when the consumption of hotels are added. The total real size of the market will likely be more than three million kilogrammes, when the illicit WPT sales done in 4 and 5 stars hotels and the effect of the Syrian refugees are added to the amounts acquired via both methods.

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

The reasons of growth of the illicit WPT market are different from the illicit cigarette and RYO. The users turn to the illicit cigarette and RYO since they are much cheaper than the legal products. Legal WPTs sold at 14.5 USD/kg are available in the market. Their unit averagely in 25 grams in price of 0.38 USD could be used in 40 waterpipes. The cheapest price of waterpipe is between 2.5 – 3.5 USD in the cafes to where students go often. In the interviews done with waterpipe cafe owners, it is 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 the 60% of the market which are preferred much more by the users, are between 10 – 12 USD/kg. In this respect; the cost of per waterpipe is 0.13 USD for a cafe which uses the cheapest smuggled WPT.
However; it is considered that the mentioned cost differentiation between legal and illegal products is not worth to the legal risks taken by using the smuggled products. In this context, it does not make sense. In that case, it is clear that the reason of illicit WPT use of waterpipe cafes is not to earn quite high profit. In the interviews, waterpipe cafe owners stated that the main problem is that the customers do not like the taste of legally produced WPTs in Turkey. Cafe owners think the same way that the quality of the smuggled WPTs are pretty higher and tasteful than the domestically produced legal WPTs. So they sell the smuggled ones.

**Discussion**

Illicit trade poses a serious threat to public health because it increases access to – often cheaper – tobacco products, thus fuelling the tobacco epidemic and undermining tobacco control policies [24]. The detection made by the WHO reflects the situation in Turkey completely.

106,22 billion of cigarette and 27.5 billion empty cigarette tubes were legally sold in Turkey in 2017 [4]. When 6,66 billion of cigarettes caused by RYO use with leaf cigarette paper predicted five million kilogrammes and 12.85 billion sticks of smuggled cigarette are included [14], the total illicit market rate reaches 30.7% of total products both illicit and legal consumed. With regards to RYO, this situation is specific to Turkey and any similar situation was not observed in other countries. On the other hand, the risk for the illicit RYO users increases incrementally due to high amount of agricultural pesticides and unknown chemicals using during production processes of RYO. From the point of tobacco growers, it is not possible that a grower makes such big money no matter which agricultural product she/he plants. It explains why growers continue to do such a risky business. Likewise, due to the economic size of the illicit market, penalties do not mean anything for the illegal actors directing the market.

Within this scope it could be said that the amount of illicit RYO production and use reached a size destructing all the main tobacco control measures, ruined the operation of legal leaf tobacco market and caused leaf tobacco growers to turn to illicit trade.

As for WPT market, due to the fact that almost all WPT market is illicit in Turkey, the situation is quite different from the other countries in the world. According to calculations, the total size of the market is likely more than three million kilogrammes. In any case, it is clear that amount of 10.360 kilogrammes of legally sold WPT in Turkey in 2016 is quite far from meeting the requirements of waterpipe cafes. As a conclusion, WPT use has become an epidemic in Turkey, undermining principle tobacco control policies and increasing tobacco addiction especially among young people.

In this regard, illicit WPT and RYO markets in Turkey have caused a serious chaos in terms of tobacco control.

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 acquired as a result of the policies applied since 2008 could disappear and the amount of the use in 2008 was regressed due to the increase in cigarette use again. In the study called "Assessment of Harmonization of Framework Convention on
Tobacco Control in Turkey” carried out in 2017 [25], it was determined that faults in regulation working for decreasing the demand after 2011–2016 period were observed, the inspection and enforcement activities became ineffective; Turkey's leadership position started to get weaker and tobacco control policies could not acquire the aimed achievement in another study in the same year [26]. Therefore; Turkey was placed among the low-point countries with 58 points in the ITCS in 2016 [15] and she regressed to the 9th grade on TCS in the same year [27].

An estimation on the total illicit economy in Turkey in 2016 is 27.8% that is pretty larger than the EU’s average 18.3% which means illicitness is highly common in all markets in Turkey that undermines the country’s economy [28]. There is an inadequacy in general in this regard which affects negatively the tobacco market either. Hence, taking suitable measures at the macro economic level is an important factor in order to decrease the level of illicitness in tobacco market.

Besides, the other important measures should be implemented such as effective border and customs security to stop smuggling, increasing country wide inspections to illegal production and sales points with WPT cafes, raising awareness about the risks of illicit products for the public health, strengthen security forces to struggle illegal organizations, supporting economically viable alternatives to tobacco growing and an etc., together with macro economic measures.

That should also be taken into account that since consumption centered tobacco control policies looks like unsatisfying in global and nationwide, measures relating to limitation of production could also be considered from now on for more effective tobacco control implementations.

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 will be recorded; smokers will be able to use legal products, the processes of product, production, sale and use will become measurable and traceable, observance and inspection activities can be conducted, in this context, tobacco control measures will be enabled to be brought into force in practice. Therefore; the two most important underminers and hindrance to sustainable tobacco control policies in Turkey will significantly be eliminated.

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

Ethics Committee Approval: Although the ethical principals 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.

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