

Modus Operandi of Actors Involved in the Illicit Tobacco Trade in EU Countries

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Abstract

The goal of the present study is to contribute to the improvement of cooperation between countries in global efforts to eliminate illicit trade in tobacco products (ITTP), by identifying common gaps and potential solutions using modern statistical instruments. For each of the 30 European reference countries, the first objective of this paper is to identify models of ITTP *modus operandi*. Empirical and individual observations suggest that such models exist, but no rigorous statistical evidence is available. The second objective of this paper is to assess the similarities and differences between various components of governance in countries for each ITTP model identified. The paper demonstrates that countries sharing common patterns of *modus operandi* in ITTP, also share common strengths and weaknesses in their governance status. Reinforcing governance with shared instruments and common goals across countries sharing common ITTP *modus operandi*, can potentially improve the control of illicit trade in these products. The current study presents evidence for the need to tailor cooperation between countries and the significant role of non-fiscal measures in fighting ITTP.

Keywords

Illicit tobacco trade, European Union countries, cluster analysis

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C38, I18

INTRODUCTION

The European Commission's 2nd Action Plan to Fight the Illicit Tobacco Trade 2018–2022, based on the recommendations of the WHO Framework Convention on Tobacco Control (FCTC) Protocol to Eliminate Illicit Trade in Tobacco Products, as well as reports of other international organizations (the World Bank, Centre for Disease Prevention and Control, etc.) emphasizes the essential role of bilateral and multilateral cooperation between states for an effective and efficient fight against illicit tobacco trade (ITT) (WHO-FCTC, 2013; EC, 2017: *Com (2013) 324*).

It is a major concern in Europe, as stated by the European Commission in its progress report to the Council and European Parliament regarding the implementation of the European Union (EU)

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strategy against cigarette smuggling and other forms of illicit trade in tobacco products (*Com (2013) 324*). By making cigarettes more affordable and accessible to people from low-income groups, as well as to children, through lower prices than those set to discourage smoking, and by avoiding product regulation (e.g. such as labelling and control of ingredients), the illicit trade in tobacco products poses a serious threat to public health because it facilitates the uptake of tobacco use by youth and undermines tobacco control policies. According to the European Commission, there are substantial losses in government revenues: It is estimated that, if all cigarettes sold on the black market were sold legally, the budget of the EU and its Member States would receive above € 10 billion annually (*Com (2013) 324*). ITTP is also a source of revenue for organized crime groups from Europe and beyond, as well as for terrorist organisations (*UN Security Council Resolution No. 2199*). Therefore, fighting the global illicit tobacco trade is essential to protect EU public health, public revenues and public security.

The actors contributing to development and persistence of illicit tobacco trade are numerous and diverse, from individuals to transnational criminal networks. Illicit trade can be undertaken both by illicit players, not legally registered, as well as by legitimate entities with (some) business operations that do not comply with applicable laws and regulations (e.g. some duty-free zones, tobacco product manufacturers). These illicit tobacco trade activities are carried out by three main types of actors, each one adopting different *modus operandi* practices: large-scale actors, medium-scale actors and small-scale actors (Savona and Riccardi, 2015). The potential profits associated with large-scale ITTP and low levels of risks in terms of detection, seizures, penalties and criminal procedure, create incentives for participation by organized crime networks. Even if the number of large-scale actors is less numerous, they are believed to be responsible for more than 90% of illicit tobacco trade (Savona and Riccardi, 2015).

The features of ITTP vary from one region or country to another, although the main characteristics are common, largely falling under the three following categories: contraband, counterfeit or illicit whites.³

Three main established routes are used to bring cigarettes into Europe: the North-Eastern route, the extended Balkan route and the Maghreb route (Savona and Riccardi, 2015). The North-Eastern route is the main way by which illicit flows of cigarettes from extra-EU eastern European countries enter EU Member States. About half are illicit whites and the remainder are contraband. The actors are organized crime groups involved in large-scale cigarette trafficking.

Price and tax differences between countries create financial incentives to avoid or evade taxes. The impact of tax and price disparities on type and level of illicit trade activities has been examined extensively by economists. For example, price differences between adjacent geographical areas motivate bootlegging and legal cross-border shopping, according to studies conducted in the United States (Baltagi and Levin, 1992; DeCicca et al., 1997; Licari and Meier, 1997), multiple European countries (Joossens and Raw, 2008; Merriman, 2000), Estonia (Taal et al., 2004), the United Kingdom (Buck et al., 1994), France (Lakhdar, 2008), and in many other countries.

Despite studies and campaigns conducted by the tobacco industry promoting the message that taxes and prices have the most important impact on ITTP at a country level, independent evidence indicates that the illicit cigarette market is relatively larger in countries with low taxes and prices while being relatively smaller in countries with higher cigarette taxes and prices (National Research Council, 2015). Illicit trade in tobacco is not only inconsistent with the rule of law, but often depends on and can contribute to weakened governance (e.g. through corruption and the presence of organized criminal networks) (World Bank Group, 2019). Thus, non-price factors such as governance status, weak regulatory frameworks, social acceptance of illicit trade, and the availability of informal distribution networks appear to be far more important determinants of the size of the illicit tobacco market (Chaloupka et al., 2019).

³ 'Illicit whites' (also known as 'cheap whites') refers to cigarettes produced lawfully in one jurisdiction for the sole purpose of being exported and illegally sold in a jurisdiction where they have no legitimate market. Illicit whites have emerged in ITTP channels in the EU over the past decade and several sources indicate their growing importance.

The laws, regulations, systems and effectiveness of governance that contribute to the political and regulatory environment influencing the illicit trade, were analysed by The Economist Intelligence Unit in 2018 using relevant literature and consultations with independent and tobacco industry-related advisers. The result is the Global Illicit Trade Environment Index (ITEI) Report (The Economist Intelligence Unit, 2018), which evaluates 84 countries, including EU Member States, on their structural capability to protect against illicit trade, either through action or inaction. The index is built around four main categories, each with four to seven indicators: government policy; supply and demand; transparency and trade; and customs environment.⁴

The goal of this study is to contribute to the improvement of cooperation between countries in global efforts to eliminate ITT, by identifying common gaps and common possible solutions using modern statistical instruments.

The analysis was carried out for 30 European countries (28 EU Member States, Norway and Switzerland). It comprises two phases: the identification of patterns of *modus operandi* for ITTP (or ‘typologies’) and the identification of associations between specific patterns and specific governmental policy.

For each of the 30 European reference countries, the first objective of this paper is to identify models of *modus operandi* in ITT. Empirical and individual observations suggest that such models exist, but no rigorous statistical evidence is available.

With an increasing body of evidence suggesting the substantial role of non-price factors as determinants of the size of the illicit tobacco market, the second objective of this paper is to assess the similarities and differences between different components of governance in countries for each identified ITT model.

The main sources of information for the statistical analysis (SUN Report, the N-EXUS Report and the ITEI Report) were funded by three multinational cigarette manufacturers and use data from independent but industry-related sources. Thus, the most significant limitation of the current study is the use of data belonging to the tobacco industry in the statistical analysis. Taking into account the tobacco industry’s long history in manipulating research, and suggestions from different studies about the use of similar strategies in relation to ITTP (Gallagher, 2019), including the recommendations contained in the World Bank review (World Bank Group, 2019), the authors were conscious through the whole study process of the need to be very cautious in using these data. This limitation was overcome by cross-verification of data, where available, including the use of discussions developed in the framework of the World Health Organization (WHO)-EU project. Stakeholders and customs and other governmental experts from countries studied were contacted, and the data were verified for accuracy. A careful and comprehensive analysis of methodologies used in the reports was also undertaken, in order to identify potential bias and distrusted information. Efforts were made to introduce primary data instead of secondary data into the analysis, where available, in order to diminish potential subjective interpretations.

1 TYPOLOGIES OF COUNTRIES IN TERMS OF ITTP

In the first phase, defining typologies of countries in terms of ITTP, five categories of variables were used in describing ITTP (Table 1): (i) category(s) of illicit tobacco trade products; (ii) main brand(s) of illicit cigarettes; (iii) illicit tobacco trade flows; (iv) illicit tobacco trade routes; (v) main country(s) of origin

⁴ Indicators included in **Government policy**: 1. Commitment to illicit trade-related treaties, 2. Compliance to Financial Action Task Force (FATF) money laundering provisions and standards, 3. Intellectual property protection, 4. Corruption, 5. Law enforcement techniques, 6. Interagency collaboration, 7. Cybersecurity preparedness; in **Transparency and Trade**: 1. Track and trace services, 2. Adoption of Annex D of Revised Kyoto Convention, 3. Free trade zones governance, 4. International reporting; in **Supply and Demand**: 1. Tax and social security burdens, 2. Quality of state institutions, 3. Labour market regulations, 4. Perception of organized crime; and in **Customs environment**: 1. Percentage of shipments physically inspected, 2. Customs clearance and inspection, 3. Automation, 4. Authorized Economic Operator programme, 5. Customs recording system.

of illicit cigarettes. One of the most common hierarchical clustering techniques, the Ward method, was used to create homogenous groups of countries. As the database contains both quantitative and binary variables, we have chosen to use the Gower and Legendre measure of dissimilarity (Gower and Legendre, 1986).

The dendrogram shown in Figure 1 was derived using the Ward method. By analysing the latest ten steps of clustering history – by applying the pseudo T-square index⁵ and pseudo

Table 1 Variables describing illicit tobacco trade

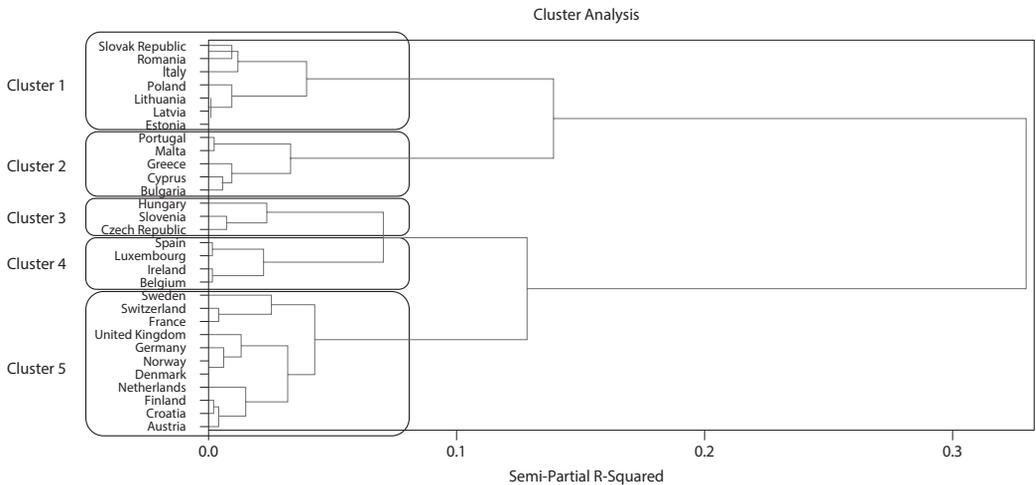
1	Description	Indicators	Data source
Category(s) of illicit tobacco trade products	Percentages of cigarettes in each category in the total number of illicit cigarettes in the reference country (in 2017).	1. Illicit whites (IW, %) 2. Counterfeits (%) 3. Contraband or loose tobacco (%)	RUSI data (KPMG, 2017)
The main brand of illicit cigarettes	Indicator that specifies which are the manufacturers of the first two most frequent brands of illicit cigarettes in the reference country.	1. British American Tobacco 2. Japan Tobacco International 3. Philip Morris International 4. Other (not known or manufacturer of illicit whites)	RUSI data (KPMG, 2017)
Illicit tobacco trade flows	Indicators that specify which are the main illicit tobacco trade flows in the reference country. They are constructed as follows: - if the reference country is destination for illicit tobacco products the flows are Inwards; - if the reference country is origin for illicit tobacco products the flows are Outwards; - if the reference country is on a route between an origin and a destination country for illicit tobacco products the flows are Transit. A reference country could have Inwards, Outwards and Transit flows or any other combination of them.	1. Inwards 2. Transit 3. Outwards	RUSI data (KPMG, 2017) and NEXUS data (Aziani and Dugato, 2019) on traffic routes. To have more accurate data, they were compared and completed with information from qualitative interviews with in-country experts conducted under the WHO–EU project: Illicit Tobacco Trade in the European Union 2017–2019 – raising awareness and enhancing understanding of illicit tobacco trade among academic researchers in the European Union.
Illicit tobacco trade routes	Indicators that specify the routes used by traffickers with tobacco products in reference country.	1. North eastern route 2. Balkan route 3. Maghreb route	NEXUS data (Aziani and Dugato, 2019)
Main country(s) of origin for illicit cigarettes	Indicators that specify whether the main origin country for illegal cigarettes found in reference country is one of the non-EU neighbouring countries: Belarus, Russian Federation or Ukraine, or other known origin country (from EU or not), or unknown origin country.	1. Ukraine 2. Belarus 3. Russian Federation 4. Illicit whites with unknown country of origin 5. Other country (e.g. Algeria, Bosnia-Herzegovina, Bulgaria, Czech Republic, Estonia, Gibraltar, Poland, Romania)	RUSI data (KPMG, 2017)

Source: Authors own synthesis and computations

⁵ Pseudo T-square Index quantifies the difference between two clusters that are merged at a given step. If the pseudo T-square statistic has a distinct jump at step k of the hierarchical clustering, then the clustering in step $k + 1$ is selected as the optimal cluster (Milligan and Cooper, 1987).

F statistic⁶ – the most appropriate number of clusters to group the thirty European countries included was identified as five. The homogeneity inside the clusters is high (with semi-partial R-squared of 0.03) meaning that the countries inside a cluster are very similar from the point of view of the features of ITTP. The variation between clusters is large (with a pseudo F statistic of 13.10), meaning that they are indeed different, enabling the five different typologies of ITTP to be distinguished (Annex Table A1).

Figure 1 Dendrogram obtained by using Ward Method and Gower and Legendre measure



Source: Authors computations using SAS Studio software on RUSI data (KPMG, 2017)

The characteristics of the five clusters identified are summarised in Table A2 in the Annex.

The first typology (Cluster 1), specific to Estonia, Italy, Latvia, Lithuania, Poland, Romania and Slovakia, can be defined as follows: The main category of illicit trade products is illicit whites, representing a mean of 63.4% of total illicit trade. The contraband and loose illicit tobacco products comprise 28.9% and counterfeit illicit tobacco products 7.8%. Smuggled brands are not known brands produced by the top three global manufacturers. The country of origin is either Belarus or unknown. In all countries with this typology, illegal cigarettes enter the country through the north eastern route. Cigarettes also arrive in Italy via the Balkan and Maghreb routes. In general, the countries in this cluster are transit countries, except for Romania, which is also an origin country.

The second typology (Cluster 2), specific to Bulgaria, Cyprus, Greece, Malta and Portugal, can be defined as follows: The illicit tobacco market is divided equally between illicit whites and contraband or loose tobacco, but the main country of origin is unknown. The main brand of illicit tobacco products for all countries is not produced by one of the top three global cigarettes manufacturers. However, in the case of Malta and Portugal, the second brand of illicit tobacco is produced by PMI. All the countries from this cluster use the Balkan route in illegal tobacco trade and in the case of Malta and Portugal illegal trade also uses the Maghreb route (by passing through Spain and Italy). The flows of ITTPs is inward, outward and/or transit.

⁶ The pseudo F statistic describes the ratio of between-cluster variance to within-cluster variance, meaning that if there are no significant changes in pseudo F-statistic at step k of the hierarchical clustering, then the clustering in step k + 1 is selected as the optimal cluster (Milligan and Cooper, 1987).

The third typology (Cluster 3), specific to Czech Republic, Hungary and Slovenia, can be defined as follows: The main category of illicit trade products is contraband or loose tobacco, with a mean of 68.3% of total illicit trade. The main two brands traded on the illicit tobacco market are produced by PMI and BAT. The countries are mainly transit countries on the north eastern and Balkan routes, with the main country of origin being Ukraine or one of the countries from the 'Other country' category (e.g. Bosnia-Herzegovina).

The fourth typology (Cluster 4), specific to Belgium, Ireland, Luxembourg and Spain, can be defined as follows: The main category of illicit trade products is contraband or loose tobacco, with a mean of 73.9% of total illicit trade. The two main brands traded on the illicit tobacco market are produced by PMI and BAT. These countries are mainly transit countries. Traffickers mainly use the Maghreb route and the origin country of the products is typically one of the three main source countries for illicit tobacco products in Europe: Belarus, Russian Federation or Ukraine.

The fifth typology (Cluster 5) includes the most affluent EU countries, namely: Austria, Croatia, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland and United Kingdom, and can be defined as follows: The main category of illicit trade products is contraband or loose tobacco, with a mean of 80.8% of total illicit trade. The two main brands traded on the illicit tobacco market are produced by any of the top three global producers (i.e. PMI, BAT or JTI). The countries are mainly destination countries and the illegal cigarettes largely arrive through the north eastern route, mainly from Ukraine.

2 THE RELATIONSHIP BETWEEN THE IDENTIFIED TYPOLOGIES AND GOVERNANCE ENVIRONMENT

In the second phase, we used the Illicit Trade Environment Index (ITEI) developed by the Economist Intelligence Unit to identify the relationship between the identified typologies and respective governance environments.

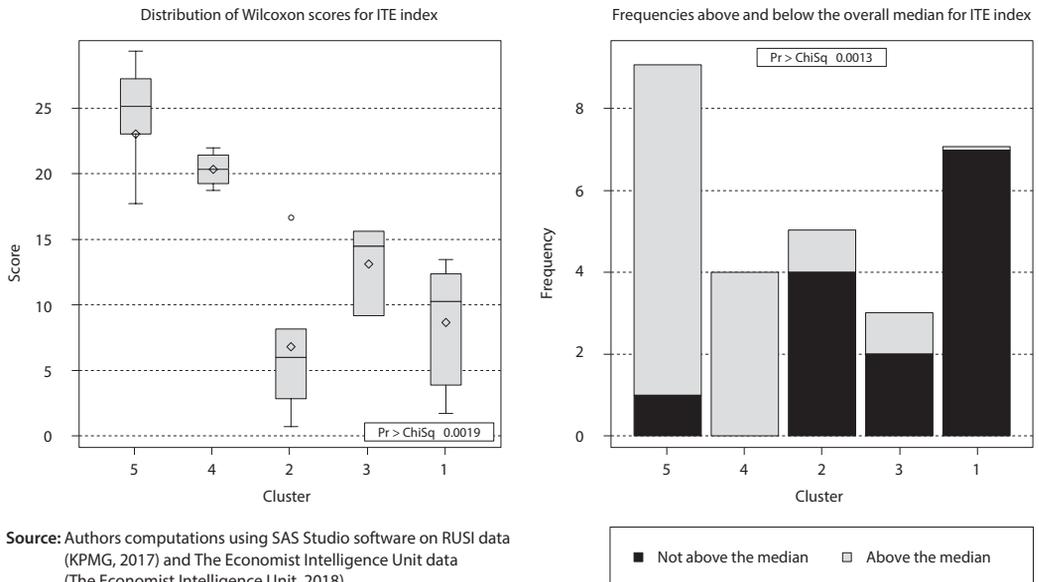
Higher values assigned by the ITEI indicate a less favourable political environment for illegal traffic. Conversely, lower values assigned for each component denote an environment that is more favourable for ITTP. Given the small number of countries in designated clusters, a nonparametric analysis of variance was used using two nonparametric tests (the median test and the Kruskal Wallis test) to determine if there were significant differences between groups of countries.

An overview of the results derived using the Kruskal Wallis and median tests demonstrates that there are significant differences between the five clusters regarding the ITEI, government policy, as well as transparency and trade components. In relation to the customs environment component, there are significant differences between clusters in terms of distribution (meaning that the central tendency and the variability are different), with a level of significance of 0.05, but there are no significant differences between medians. Regarding the supply and demand component, there are significant differences between clusters in terms of distribution with a level of significance of 0.1, but there are no significant differences between medians (Figures 2 and 3).

In the case of *countries with the first typology* of illicit tobacco trade (i.e. Cluster 1), all the coefficients of variation are less than 15%, except of supply and demand, which has a coefficient of variation close to 30% (Annex Table A3). This means that this cluster is homogenous with respect to all variables. Moreover, all indicators have low mean levels, meaning that the general governance environment facilitates illicit tobacco trade. The countries from this cluster have made significant improvements in their customs environments, reaching almost the level of clusters with high ITEI (i.e. with an environment only slightly favourable for illegal trafficking). The number of countries above the overall median is zero for government policies and one for transparency and trade, and also the median values for these variables are very low (Figure 3) meaning that, in the countries from this cluster, improvements should be made

in government policies and transparency and trade. In Italy and Romania, improvements in supply and demand policies could also be beneficial.

Figure 2 Distribution of Wilcoxon scores and the number of countries above and below overall median for each cluster for each ITEI category



Source: Authors computations using SAS Studio software on RUSI data (KPMG, 2017) and The Economist Intelligence Unit data (The Economist Intelligence Unit, 2018)

In case of *countries with the second typology* of illicit tobacco trade (i.e. Cluster 2), all variables have coefficients of variance less than 30%, but higher than in first cluster (Annex Table A3), meaning that the cluster is homogenous but less so than the previous cluster. All indicators have the lowest mean levels compared to the other clusters (Annex Table A3), meaning that the entire governance environment facilitates illicit tobacco trade. Because the frequency of countries above the overall median is zero for transparency and trade, and the lowest median value is registered for the customs environment (Figure 3), improvements mainly in transparency and trade and in the customs environment would lead to an environment less favourable for illegal trade in general, and in tobacco products in particular. Moreover, in Bulgaria, Greece and Portugal, improvements in government policies would also consistently improve the fight against ITTP.

The *countries with the third typology* of illicit tobacco trade (i.e. Cluster 3), all have coefficients of variation less than 9% (Annex Table A3), meaning that this cluster is the most homogenous with respect to all variables related to the illicit trade environment. The countries from this cluster have a medium ITEI meaning that the governance policies for limitation of ITTP are better than those from second cluster of countries but, comparing with those from the fifth cluster, improvements could be made. The lowest median value is registered for the supply and demand component (Figure 3), meaning that reducing the supply and demand for illicit cigarettes would lead to substantial reductions in ITTP.

The fourth and the fifth clusters both have coefficients of variation less than 25% (Annex Table A3), meaning that they are also very homogenous. These countries have the least favourable environment for illicit trade.

In the case of *countries with the fourth typology*, the median value for government policies is lower than that of the fifth cluster (Figure 3) meaning that improvements in government policies could be made in order to improve the illegal trade environment and therefore to reduce ITTP.

In the case of the *countries with the fifth typology*, the ITEI mean is the highest overall (Annex Table A3), meaning that the entire governance is the strongest and the most efficient in combating ITTP among the countries studied. However, the fifth cluster demonstrate lower values for the customs environment compared to the fourth cluster (Figure 3), meaning that improvements in the customs environment could lead to increased efficiency in reducing illicit tobacco trade, particularly in Croatia. Even if Croatia does not register very high values for transparency and trade or supply and demand, it has good government policies, which compensate and are making the entire environment less favourable for illicit trade.

Figure 3 Distribution of Wilcoxon scores and the number of countries above and below overall median for each cluster for Government Policy, Transparency, Supply and demand, and Customs

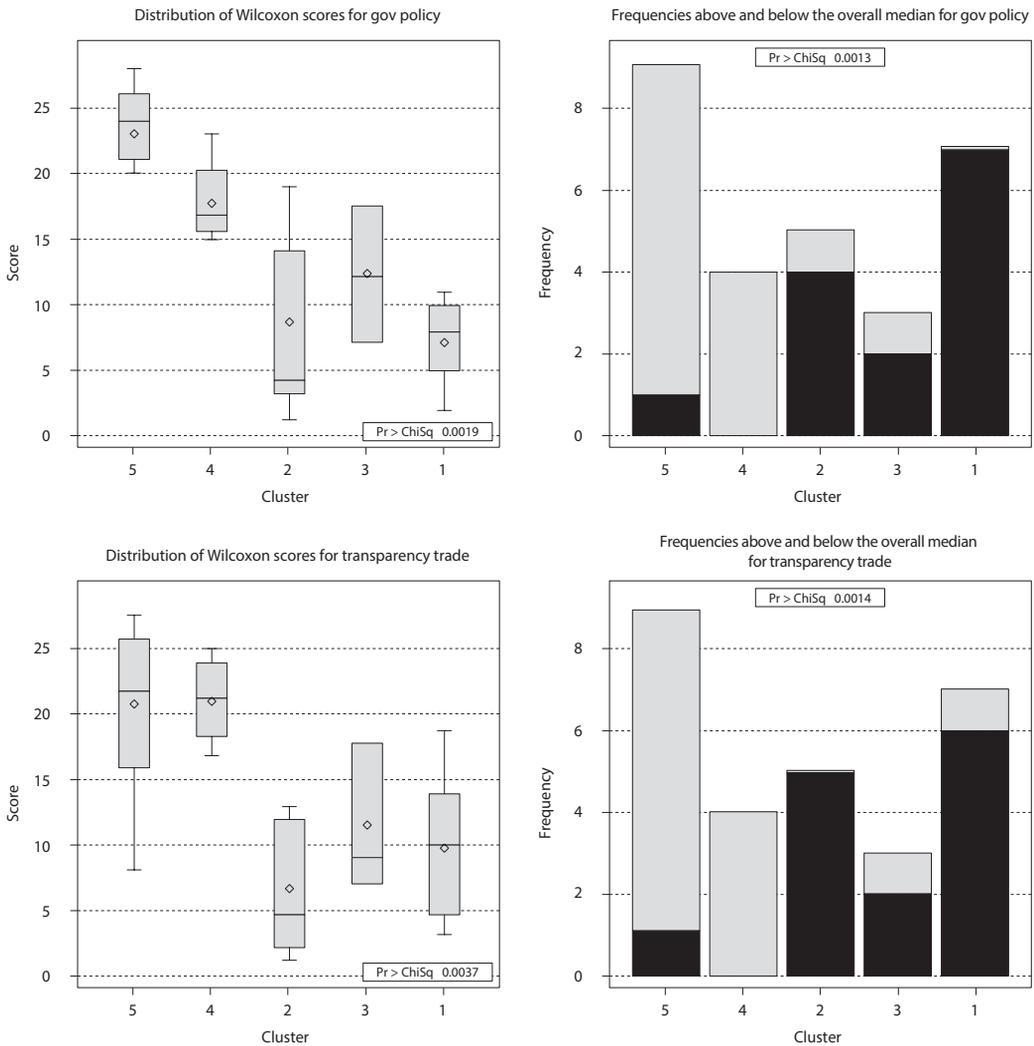
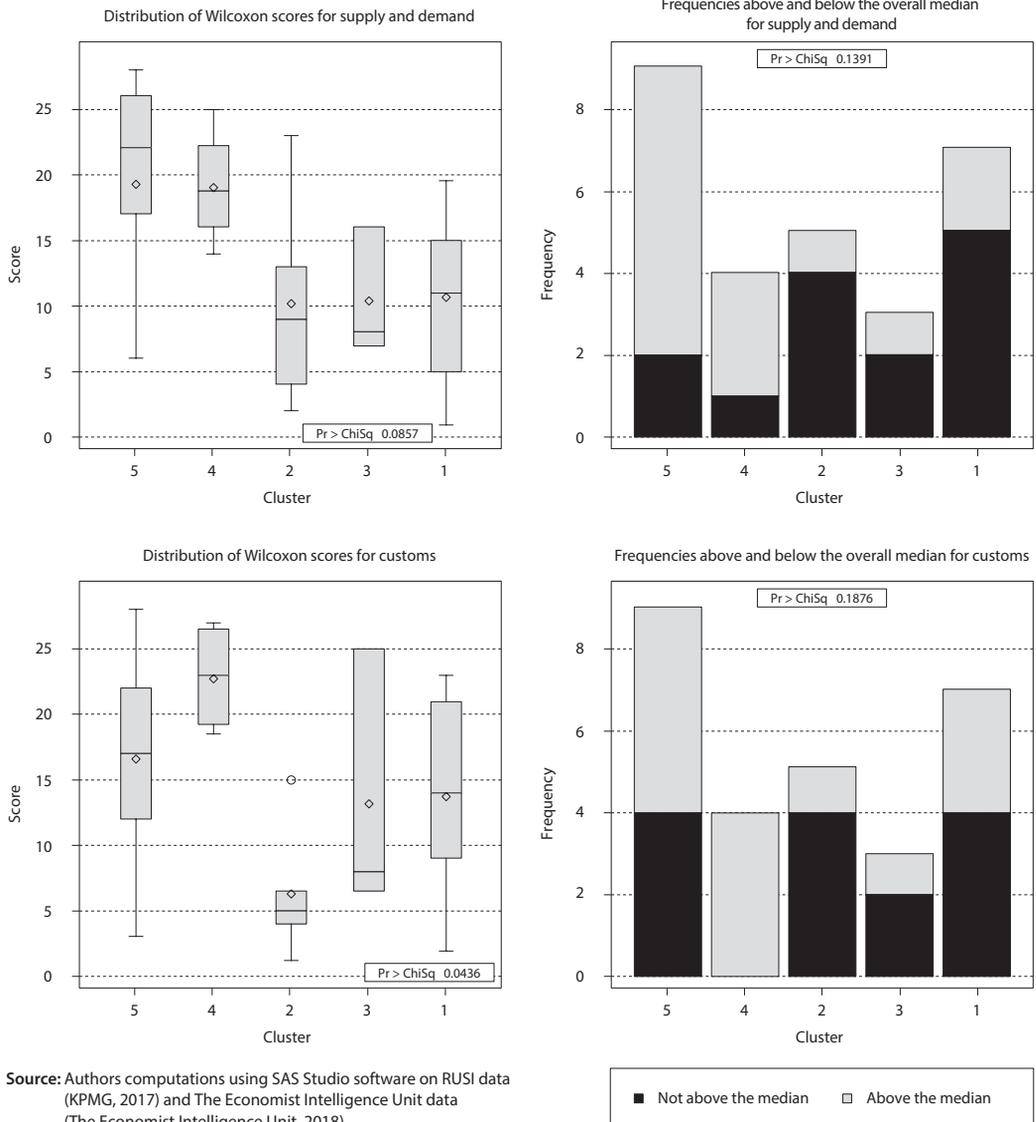


Figure 3

(continuation)



Source: Authors computations using SAS Studio software on RUSI data (KPMG, 2017) and The Economist Intelligence Unit data (The Economist Intelligence Unit, 2018)

3 DISCUSSION

The study identified five models of ITT modus operandi in EU countries plus Norway and Switzerland (Table 2).

Of the seven Model 1 countries, six (Estonia, Latvia, Lithuania, Poland, Romania and Slovakia) share a land border with former Soviet countries (Belarus, Republic of Moldova, Russian Federation and Ukraine) and a geographical position in north eastern Europe. This could explain the similarities in illicit trade of cigarettes. The results are consistent with the opinions and observational remarks of stakeholders interviewed in the framework of the EU project.

Table 2 Models of *modus operandi* for ITTP

Model of ITTP	Countries	The main features of ITTP	Governance policy to improve
Model 1	Estonia, Italy, Latvia, Lithuania, Poland, Romania and Slovakia	Illicit whites Main brand: JTI Main country of origin: IW Second main country of origin: Belarus Transit country North eastern route	Government policies Transparency and trade
Model 2	Bulgaria, Cyprus, Greece, Malta and Portugal	Illicit whites Contraband or loose tobacco Main brand: PMI Main country of origin: IW Origin country Destination country Transit country Balkan route	Transparency and trade Customs environment
Model 3	Czech Republic, Hungary and Slovenia	Contraband or loose tobacco Main brand: PMI Main country of origin: Ukraine Transit country North eastern route Route Balkan	Supply and demand
Model 4	Belgium, Ireland, Luxembourg and Spain	Contraband or loose tobacco Main brands: PMI and BAT Main country of origin: Other Transit country Maghreb route	Government policies
Model 5	Austria, Croatia, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland and United Kingdom	Contraband or loose tobacco Main brand: PMI Main country of origin: Other Destination country North eastern route	Customs environment

Source: Authors own synthesis and computations

The intriguing aspect is the presence of Italy in this cluster of seven countries, despite a totally different geographical position and political background. The high statistical power of association in this cluster assures us that this grouping is not random, and that there have to be some common aspects. Analysing the variables, the common features of the *modus operandi* are that the most commonly smuggled cigarettes are illicit whites, and that all seven countries are mainly transit countries for ITTP. Italy has an accessible source of illicit whites due to its geographical position in the Mediterranean (by sea, through the Maghreb route) and also has a non-EU land border favouring the transit of illicit products.

Our analysis demonstrates the importance of geographical position to the existence of opportunities for trafficking illicit white cigarettes. If a country has borders and the geographical position favours communication with illicit white source countries, it is more prone to share Model 1 traits with other countries. These countries could cooperate to improve governmental policies in areas such as cybersecurity preparedness, money laundering provisions, developing common standards, inter-agency collaboration and international reporting – as statistics show that these policies are the weakest in the fight against ITTP in these countries.

Model 2 countries (Bulgaria, Cyprus, Greece, Malta and Portugal) are the least homogenous group of the five models. These countries share a common route for illicitly traded cigarettes: the Balkan route. This route is proximal for four out of the five countries in the cluster. In case of Portugal and Malta, the Maghreb route is also used. Moreover, the proximity of the sea (an accessible source for illicit whites) and of a non-EU land border favours the transit of illicit products. From the perspective of improvements in governance policies, possibly achieved through extensive cooperation between Model 2 countries, the most interesting potential areas are improvement of customs recording systems, the governance

of free trade zones and international reporting. These improvements are achievable, as indicated by the discussions in the framework of the EU-funded project.

The countries of Model 3 (Czech Republic, Hungary and Slovenia) are land neighbours with Austria, from which cigarettes are illicitly traded to Germany, an EU state among the highest consumers of illicit tobacco products (cigarettes and loose tobacco). This geographical feature and the lack of formal borders (as all these countries are part of the Schengen area) ease the illicit trade. The weakest component in these three countries is supply and demand for illicit cigarettes. According to the latest Eurobarometer on public perception of the illicit tobacco trade, only 18% of Hungarian citizens believe that black market cigarettes provide one of the most important sources of revenue for organized crime, in Czechia this is 12% and in Slovenia 11%. These perceptions could motivate the authorities from the three countries to collaborate in enhancing perception of organized crime among their citizens in relation to ITTP, in an attempt to improve the weakest area of governance policy, namely supply and demand.

The Model 4 countries (Belgium, Ireland, Luxembourg and Spain) are all very high developed countries that in general prefer original brands of international manufacturers rather than illicit whites. However, the proximity of the sea (three of them have sea borders), and the lack of a formal borders with other EU countries as members of the Schengen Area, makes these countries accessible for illicit products, favouring the Maghreb route to France or the United Kingdom and Ireland (using the western sea borders of the EU). Even though they are very developed countries, they could cooperate more to improve governmental policies in areas such as cybersecurity preparedness and money laundering provisions.

The Model 5 countries (Austria, Croatia, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland and the United Kingdom) strongly prefer original brands to illicit whites. The study finds that the most smuggled brand in these destination countries is owned by Philip Morris International. This situation could be explained by the high quality of life and revenue indicators of the population living in these countries. The products are not manufactured in the reference country but are transported via the north eastern route. As most of these countries are members of the Schengen Area, it is obvious that the weakest link in the chain of governance policies is the customs environment; however, this is difficult to improve within the EU borderless framework. Considering that the most used illicit cigarettes in these countries are the brands owned by the three big manufacturers, and the factories are in the countries along the north eastern route (the main route for transport), the collaboration between these states should be focused more on implementing the EU 'track and trace' system.

CONCLUSIONS

The paper demonstrates that countries sharing a common pattern of *modus operandi* in ITTP also share common strengths and weaknesses in their governance status. Reinforcing governance with common instruments and common goals in countries sharing a common ITTP *modus operandi*, could improve the control of illicit trade in these products. Thus, the study presents evidence for the need to tailor cooperation between countries in order to maximize the result.

The study also presents evidence for the significant role of non-fiscal measures in fighting ITTP. While the recommended fiscal measures are the same for all countries (i.e. increased taxation using comparable instruments), the non-fiscal measures must be adapted to the internal needs and particularities of each country, in order to be effective and efficient. The study supports the empirical observations and assumptions that good implementation of the EU track and trace system, part of trade and transparency policy of good governance, can diminish the illicit outflow of cigarettes from Model 2 countries and the illicit inflow to Model 5 countries. If Model 1 and Model 4 countries collaborate in improving governmental policies targeting cybersecurity preparedness, corruption and money laundering, we could expect a decrease in the illicit trade of branded and non-branded cigarettes transported through routes with both EU and non-EU origins.

This paper is not intended to support the use of industry-related data, or to encourage the use of this information. In the absence of any independent and publicly available assessments of the 3 reports, due to their recent publishing (in 2018 and 2019), and in the absence of other sources of detailed quantitative information regarding the magnitude and the modus operandi of ITTP, the authors consider that they used these sensitive data with the greatest possible precaution. Although, the statistical methods used in current paper are reliable and can be used in attaining the objectives related to a better understanding of ITTP, in future studies it is recommended the use of data from total industry-independent sources.

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ANNEX

Table A1 Clustering history – Ward method

Cluster history								
Number of clusters	Clusters joined		Freq.	New cluster RMS (Std)	Semi-partial R-squared	R-squared	Pseudo F statistic	Pseudo T-square
10	CL18	Hungary	3	0.18	0.02	0.85	12.70	3.30
9	CL21	Sweden	3	0.17	0.03	0.83	12.50	6.10
8	CL12	CL13	8	0.14	0.03	0.79	12.10	4.70
7	CL17	CL23	5	0.16	0.03	0.76	12.20	6.10
6	CL15	CL14	7	0.15	0.04	0.72	12.40	6.40
5	CL8	CL9	11	0.17	0.04	0.68	13.10	3.80
4	CL11	CL10	7	0.21	0.07	0.61	13.30	6.30
3	CL5	CL4	18	0.22	0.13	0.48	12.20	7.60
2	CL7	CL6	12	0.22	0.14	0.34	14.10	11.70
1	CL3	CL2	30	0.26	0.33	0.00	.	14.10

Notations: RMS: Root Mean Square; Std: standard deviation.
Source: Computations using SAS Studio software on RUSI data (KPMG, 2017)

Table A2 Typologies of illicit trade of cigarettes

Cluster	No obs.	Variable	Mean	Std.	Minimum	Maximum
Cluster 1 Estonia, Italy, Latvia, Lithuania, Poland, Romania and Slovakia	7	Illicit whites (%)	63.4%	15.5%	38.9%	87.7%
		Counterfeit (%)	7.8%	5.5%	1.4%	16.7%
		Contraband or loose tobacco (%)	28.8%	10.7%	10.5%	44.4%
		Main brand of illicit cigarettes: JTI	14.3%			
		Main country of origin: IW	42.9%			
		Main country of origin: Belarus	57.1%			
		Origin country	14.3%			
Transit country	71.4%					

Table A2		(continuation)				
Cluster	No obs.	Variable	Mean	Std.	Minimum	Maximum
Cluster 1 Estonia, Italy, Latvia, Lithuania, Poland, Romania and Slovakia	7	North eastern route	100.0%			
		Balkan route	14.3%			
		Maghreb route	14.3%			
Cluster 2 Bulgaria, Cyprus, Greece, Malta and Portugal	5	Illicit whites (%)	49.7%	11.9%	38.1%	62.5%
		Counterfeit (%)	5.8%	9.4%	0.0%	22.3%
		Contraband or loose tobacco (%)	44.5%	12.3%	35.0%	61.9%
		Main brand of illicit cigarettes: PMI	40.0%			
		Main country of origin: IW	100.0%			
		Origin country	40.0%			
		Destination country	60.0%			
		Transit country	60.0%			
		Balkan route	100.0%			
Maghreb route	40.0%					
Cluster 3 Czech Republic, Hungary and Slovenia	3	Illicit whites (%)	26.4%	13.3%	11.4%	36.6%
		Counterfeit (%)	5.3%	4.4%	0.3%	8.3%
		Contraband or loose tobacco (%)	68.3%	17.5%	56.1%	88.3%
		Main brand of illicit cigarettes: PMI	66.7%			
		Main brand of illicit cigarettes: BAT	33.3%			
		Main country of origin: Ukraine	66.7%			
		Main country of origin: other	33.3%			
		Origin country	33.3%			
		Transit country	100.0%			
North eastern route	100.0%					
Balkan route	100.0%					
Cluster 4 Belgium, Ireland, Luxembourg and Spain	4	Illicit whites (%)	20.8%	14.5%	3.0%	33.3%
		Counterfeit (%)	5.3%	3.8%	0.0%	9.1%
		Contraband or loose tobacco (%)	73.9%	11.6%	62.3%	87.9%
		Main brand of illicit cigarettes: PMI	50.0%			
		Main brand of illicit cigarettes: BAT	50.0%			
		Main country of origin: other	100.0%			
		Transit country	75.0%			
		Maghreb route	75.0%			
North eastern route	25.0%					
Cluster 5 Austria, Croatia, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland and United Kingdom	11	Illicit whites (%)	9.1%	6.2%	1.1%	23.1%
		Counterfeit (%)	10.0%	6.1%	0.0%	18.8%
		Contraband or loose tobacco (%)	80.9%	8.9%	68.5%	93.3%
		Main brand of illicit cigarettes: PMI	90.9%			

Table A2

(continuation)

Cluster	No obs.	Variable	Mean	Std.	Minimum	Maximum
Cluster 5 Austria, Croatia, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland and United Kingdom	11	Main brand of illicit cigarettes: BAT	36.4%			
		Main brand of illicit cigarettes: JTI	27.3%			
		Main country of origin: Russian Federation	9.1%			
		Main country of origin: Ukraine	18.2%			
		Main country of origin: other	72.7%			
		Destination country	100.0%			
		Transit country	27.3%			
		North eastern route	90.9%			
		Balkan route	27.3%			
Maghreb route	9.1%					

Note: The dummy variables with mean equal to zero are not included among the characteristics of the cluster as long as mean zero means the absence of that attribute.

Notations: No. obs.: number of observations; Std.: standard deviation; BAT: British American Tobacco; JTI: Japan Tobacco International; PMI: Philip Morris International.

Source: Computations using SAS Studio software on RUSI data (KPMG, 2017)

Table A3 Means and standard deviations for all Illicit trade environment indexes

Cluster	No obs.	Variable	Mean	Std.	Coefficient of variation	Minimum	Maximum
Cluster 1 Estonia, Italy, Latvia, Lithuania, Poland, Romania and Slovakia	7	ITEI	67.8	3.8	5.7%	60.8	71.1
		Government policy	70.1	3.5	5.0%	62.6	72.5
		Transparency trade	58.9	6.4	10.8%	50.8	68.0
		Supply and demand	51.5	13.4	26.0%	23.8	64.4
		Customs	84.8	3.2	3.8%	78.0	87.5
Cluster 2 Bulgaria, Cyprus, Greece, Malta and Portugal	5	ITEI	65.6	6.0	9.1%	57.7	73.1
		Government policy	68.5	7.8	11.4%	62.5	79.4
		Transparency trade	53.7	11.6	21.5%	37.8	65.2
		Supply and demand	53.0	13.6	25.6%	36.0	71.8
		Customs	80.9	3.3	4.1%	77.2	85.8
Cluster 3 Czech Republic, Hungary and Slovenia	3	ITEI	70.5	1.7	2.5%	68.5	71.6
		Government policy	74.3	4.0	5.4%	71.1	78.8
		Transparency trade	61.6	5.5	8.9%	57.5	67.8
		Supply and demand	55.0	4.2	7.6%	52.3	59.8
		Customs	84.5	3.2	3.8%	81.6	87.9
Cluster 4 Belgium, Ireland, Luxembourg and Spain	4	ITEI	76.9	2.1	2.7%	74.1	78.6
		Government policy	79.8	3.7	4.6%	76.9	85.2
		Transparency trade	70.5	2.3	3.3%	67.6	72.9
		Supply and demand	65.1	7.0	10.7%	58.2	74.8
		Customs	87.4	1.0	1.2%	86.5	88.5

Table A3

(continuation)

Cluster	No obs.	Variable	Mean	Std.	Coefficient of variation	Minimum	Maximum
Cluster 5		ITEI	78.9	6.0	7.6%	65.8	85.6
Austria, Croatia, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland and United Kingdom	11	Government policy	85.9	7.2	8.4%	73.4	96.3
		Transparency trade	69.8	5.1	7.3%	58.8	75.0
		Supply and demand	67.0	13.7	20.4%	43.9	81.3
		Customs	85.8	3.2	3.8%	78.3	90.2

Note: If coefficient of variation is less than 30% it means that the cluster is homogenous.

Notations: Obs.: observations; Std: standard deviation; ITEI: Illicit Trade Environment Index.

Source: Computations using SPSS software on RUSI data (KPMG, 2017) and The Economist Intelligence Unit data (The Economist Intelligence Unit, 2018)