



# Ardahan Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi

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## An analysis of the illicit tobacco trade: the influence of the effectiveness of administrative enforcement and high taxation on illicit trade

*Yasadışı tütün ticaretinin bir analizi: idari yaptırım ve yüksek vergilendirmenin etkinliğinin yasa dışı ticaret üzerindeki etkisi*

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### ABSTRACT

Even though tobacco products are commonly legal substances, the illicit tobacco trade is one of the largest among other illegal products and services. Although high taxation is often blamed for the development of illicit tobacco trade, it is the strength and efficiency of the regulatory framework that should form the focus attention when investigating the control of illicit trade. This secondary based research aims to analyse the relationship between the estimated size of illicit tobacco trade and the strength of enforcement, together with the influence of taxation on illicit tobacco trade. The results demonstrate that the size of illicit tobacco trade tends to be smaller where countries have strong enforcement capability. Moreover, countries with strong enforcement capability can also increase taxation on tobacco products while suppressing the development of illicit tobacco trade. Finally, as illicit tobacco products are mainly traded across borders, the weak law enforcement of some governments can undermine the international effort to eradicate illicit tobacco trade.

### ÖZET

Tütün ürünleri genellikle yasal maddeler olsa da yasa dışı tütün ticareti diğer yasa dışı ürün ve hizmetler arasında en büyüklerinden biridir. Yasa dışı tütün ticaretinin gelişmesi için genellikle yüksek vergilendirme suçlansa da yasa dışı ticaretin kontrolü araştırılırken odak noktası düzenleyici çerçevenin gücü ve etkinliği olmalıdır. Bu ikincil temelli araştırma, yasa dışı tütün ticaretinin tahmini büyüklüğü ile yaptırım gücü arasındaki ilişkiyi, vergilendirmenin yasa dışı tütün ticareti üzerindeki etkisiyle birlikte analiz etmeyi amaçlamaktadır. Sonuçlar, yasa dışı tütün ticaretinin boyutunun, ülkelerin güçlü yaptırım kapasitesine sahip olduğu yerlerde daha küçük olma eğiliminde olduğunu göstermektedir. Ayrıca, güçlü uygulama kabiliyetine sahip ülkeler, yasadışı tütün ticaretinin gelişimini bastırırken tütün ürünleri üzerindeki vergileri de artırabilir. Son olarak, yasadışı tütün ürünleri esas olarak sınır ötesi ticareti yapıldığından, bazı hükümetlerin zayıf kanun uygulamaları, yasadışı tütün ticaretini ortadan kaldırmaya yönelik uluslararası çabaları baltalayabilir.

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## 1. Introduction

Illicit trade in commodities and services has evolved to become a large contemporary profit-making business activity. Indeed, it is estimated that the 11 major types of illicit trade generate around USD 2 trillion every year globally, of which illicit tobacco trading is the fourth largest following counterfeiting, drug trafficking, and human trafficking (World Customs Organization, 2017). Moreover, the size of this illicit tobacco market is estimated to be USD 60 billion worldwide, costing governments over USD 40 billion in lost tax revenues (Euromonitor International, 2018). It is also estimated that 10% of the total world cigarette consumption is illegally purchased (World Health Organization [WHO], 2015). However, among the illicit markets, tobacco products display a unique characteristic in that, although these products essentially hold a legal status, many governments are now imposing strict regulations such as higher taxation justified by the health risks warnings they carry. There are a variety of regulatory instruments that governments prefer to implement in their public policy programmes. For the illicit tobacco trade (ITT), the popular one has become the financial regulation which is higher taxes. However, policy choice might not be the most efficient option. Choosing the most efficient policy tool is critical in order to create meaningful impact for the economy. Therefore, we aim to test this assumption empirically by inserting new variable into the equation: enforcement of regulations as opportunities arise for criminal organisations especially where the enforcement regulations are weakly applied. Therefore, this paper will argue that, in contrast to popular perception, the ITT is not typically promoted by higher taxation, but as a result of the extent, efficiency, and vigour of market regulation in and between particular nations. To this end, this paper will first describe the difference between legitimate and illegitimate businesses. Secondly, the incentive for the market entry of illicit tobacco products, even where the sale and consumption of tobacco products are generally legal, will be analysed. After this, the impact of higher taxation on the development of ITT will be investigated. Then, the influence of the law enforcement capability on ITT will be explored. Finally, this paper will discuss how the weak law enforcement of some governments can compromise the international effort to eradicate the ITT.

## 2. Literature Review

### 2.1. *The difference between legitimate and illegitimate businesses*

It can be sometimes overlooked that organised criminal groups trading in the economy operate in very similar ways to legitimate ventures in terms of a number of key characteristics. For example, in terms of organisational structures, some criminal ventures may adopt the rigid chain-of-command model of bureaucracy that is typically characterised by corporations, governments, and armed forces, as it is suitable for performing extensive tasks (von Lampe, 2016). Some may establish regional networks based on loyalty and respect that enable them to control and manage resources between them, while others may take an enterprise form that prioritises market and economic activities rather than rigid organisational structures. Furthermore, they will also adapt their organisational structures and business models when responding to changes in external market environment, just the same as any legitimate business. Moreover, criminal organisations are frequently highly sophisticated and act in a rational manner in order to maximise profit opportunities while minimising risks (Abadinsky, 2010). Finally, criminal organisations are now engaging more in transnational criminal activity, as the obstacles to the transport people,

goods, and currencies across borders have also been lowered due to globalisation and weakened political engagement.

### 2.2. *The incentive for the market entry of illicit tobacco products*

The fundamental difference between legitimate and illegitimate businesses is, therefore, the legal status of the products and services that they offer. Although the sale and consumption of tobacco products are generally legal in many countries, they become illegal when attempts are made to evade taxes, are smuggled, or produced illegally.

Prohibiting the trade or imposing strict regulations on repugnant markets such as tobacco products may create shadow economies. According to Roth (2007), repugnant markets arise where products and services are considered socially inappropriate while there still exists a certain demand for them, or where trading certain items in exchange for money becomes regarded as unethical or anti-social. For example, many societies find the human consumption of dog meat repulsive, while selling and buying kidneys are considered unethical even though donating them is generally acceptable. However, should the transaction of such items have sufficient customer demand, they will typically be traded in illicit markets (Gu et al., 2022).

With regard to tobacco products, the main factor that provides criminal organisations with the opportunity to engage in transnational illicit trade is the difference in retail prices of tobacco products across countries. The retail price is determined by both the price set by the tobacco companies and tax rates. Here, the reason why many governments justify tax increases on tobacco products is primarily to reduce smoking prevalence. WHO (2021) demonstrates that when the price of tobacco products is increased by 10%, tobacco consumption is reduced by 4–8% in all high-, middle-, and low-income countries. It is also shown that the affordability of tobacco products significantly declines when the tax share accounts for 70% or more of the price. Therefore, WHO (2014) suggests that more than 75% of the retail price should be collected as tax to produce a greater effect on the reduction in smoking prevalence.

Therefore, the incentive for ITT is clearly purely financial. Here, supply and demand share the mutual interests where consumers could purchase a product at a lower price, while suppliers could make a large profit not only by evading custom, excise, and other duties, but also by cutting the production costs in the case of counterfeiters (Joossens & Raw, 2012). Moreover, as the risks and penalties involved in the ITT are relatively low compare to other illegal activities such as drug or arms trafficking, it has become a profitable source of income for criminal organisations (Financial Action Task Force, 2012). The existing market environment also benefits the criminal organisations.

Consequently, organised crime groups that are involved in ITT typically abuse the available international trade system that aims to facilitate international trade. For example, custom transit allows exported goods to move through countries by suspending any duties in between until the goods arrive at the destination country (Joossens, et al, 2000). However, official records show that one-third of the tobacco products never reach the intended destination because, as evidence suggests, they are extracted from registered goods and transferred to illicit channels in the country while the goods are in transit. Another example is free trade zones, where goods that are to be processed, manufactured, and re-exported as final products can be imported with little or no customs requirements imposed (OECD, 2022). Indeed, while free trade zones are designated areas whose purpose is to enhance economic development by removing or lowering major obstacles to international trade, this system is also exploited by criminal organisations

to conceal their illicit activities. Moreover, according to OECD/EUIPO (2018), there is a positive correlation between the extent of the business within free trade zones and the size of illicit trade, in that the larger and more active the free trade zones are, the higher number of illicit goods pass through the zones. The research shows that the proportion of illicit trade almost doubles to 2.2% when the economies host 20 free trade zones compared to the economies that host no such trade zones.

Furthermore, there is strong evidence that suggests that the tobacco industry itself is actively involved in ITT (University of Bath, 2021c). The transnational tobacco companies are alleged to have had been engaging in ITT since around the early 2000s, at which Philip Morris International paid USD 1.25 billion in settlement with the European Commission, while British American Tobacco and Japan Tobacco International both signed an agreement to fight against ITT with HM Customs and Excise and the European Commission respectively. However, Gilmore et al. (2019) argue that evidence provided by a number of sources, including whistle-blowers and investigative journalists, suggests that the tobacco industry is still active in illicit trade. For example, it is claimed that the transnational tobacco companies deliberately over-produce or over-supply products in certain markets with the intention to divert these excess products into the black market. Evidently, more than half of the tobacco products that are traded in illicit market are the brands owned by transnational tobacco companies. One of the problems is that the industry is influencing governments by establishing relationships with administrative bodies (Assunta, 2021). For instance, the industry offers donations to governments, and governments, in return, allow the industry to sit on committees that consider and formulate public health policies.

### ***2.3. The impact of higher taxation on the development of ITT***

As the difference in taxation and retail price of tobacco products across nations is the primary incentive for criminal organisations to engage in illicit trade, the tobacco industry has been actively lobbying against raising taxes (Scollo, 2021). Fully aware of the negative impact on profit caused by high taxation, they claim that this would only increase the volume of illicit trade. In support of this claim, the industry commissioned research by Alvarez & Marsal (2021), a consultancy firm that analysed data between 2005 and 2019 in 71 countries, reported that an increase in the price of legal tobacco products by three percent of personal disposable income leads to increase in illicit tobacco market by two percent.

However, tobacco research funded by the industry is frequently criticised for both being biased and undermining the efforts to reduce tobacco consumption (University of Bath, 2021a). Even so, the industry continues to exert their influences indirectly by extensively funding tobacco research organisations and think tanks, while acquiring credibility by associating itself with United Nations organisations such as the WHO. For example, Philip Morris International invested USD 100 million to launch an initiative called PMI IMPACT in 2016, which supports various organisations that are leading projects in the anti-illicit tobacco trade (University of Bath, 2021b). Here, the organisations that received grants from PMI IMPACT, or through its front organisations, frequently publish research results that are more favourable to the tobacco industry. Therefore, in order to investigate the quality of the research data commissioned by the industry, Gallagher et al. (2019) performed a meta-analysis of 35 papers on the ITT that cited the industry data. Their findings illustrate that industry-funded research typically exaggerates the ITT issue, while including problems with data analysis, methodology, and presentation of the data that fall short of objective research standards. Consequently, they conclude that

the industry-funded research lacks credibility and should be treated with due caution.

### ***2.4. The influence of regulatory frameworks on ITT***

In fact, contrary to the claim expressed by the industry, ITT is not typically promoted by increased taxation (Ross & Blecher, 2019), but rather is a result of the extent of the efficiency and vigour of market regulation in and between particular nations (Dutta [Ed], 2019). For instance, Nguyen et al. (2020) speculate that a combination of strict tax administration and law enforcement within the nation could have been responsible for the decline in illicit trade in Vietnam, where illicit trade reduced from 21% in 2012 to 14% in 2017 after the country increased the excise tax on tobacco products to 70% in 2016. However, this research also demonstrates the need for stronger customs law enforcement. Here, the results also suggest that more of the legally produced products were smuggled out of Vietnam during this period, which indicates that the illicit tobacco market had simply moved to other locations. Another example of the impact of law enforcement, or the lack of it, is South Africa, where the ITT, which accounted for less than 10% before 2010, has increased significantly since the law enforcement by the revenue service was markedly weakened (Vellios et al., 2020). Consequently, it was estimated that illicit products have penetrated over 30% of the market in 2017.

Moreover, the World Bank (2020) reported that customs administration, especially in developing nations, has typically been riddled with corruption. The problem becomes more serious when the number of government departments involved in the custom clearance process is larger and more of the procedures are handled manually. Therefore, the report argues that improved efficiency by simplifying the clearance procedure and computerising the operation is necessary to tackle corrupt practice in customs administration. In this context, Onogwu (2018) studied the relationship between corruption and the effectiveness of customs procedures in terms of logistical efficiency in a number of African countries using secondary data from international organisations such as the logistics performance index by the World Bank. The results showed that corruption reduces the efficiency of customs operations at a statistically significant level, while technological improvement at ports enhances the efficiency.

Furthermore, Acemoglu and Jackson (2017) argue that the effectiveness of law enforcement is also significantly influenced by social norms. For example, the higher percentage of tax evasion in Greece, which was 30% in 2011 compared to 7% in the UK, is not exclusively a result of illicit trade, but can also be explained by the wider social acceptance or tolerance towards tax evasion behaviour. In other words, law-abiding citizens would likely turn a blind eye when they witnessed law breaking behaviour if this behaviour is generally accepted in a society. The researchers also demonstrated in their statistical model that a law that conflicts with social norms is likely to be counterproductive when implemented abruptly, while social norms tend to adapt if the law is progressively tightened. For instance, many societies have succeeded in introducing a no-smoking policy in closed areas as a new norm by gradually increasing the list of places where smoking is forbidden, and thus progressively instilled the rule in the broader society.

### ***2.5. Analysing the effect of administrative efficiency on ITT***

Evidently, the retail price differences caused by various tax rates on tobacco products across nations are the primary factor that creates opportunities for ITT. Moreover, the administrative efficiency and strength

of law enforcement are crucial to suppress the development of ITT. However, despite the critical importance, the analysis of culture and social norms affecting the ability to control ITT in each nation is not within the scope of this paper, and thus, this paper will focus on the relationships between the level of taxation, the estimated size of ITT, and the level of strength of regulatory framework. Understanding these relationships would provide policy makers with a clearer direction to control and regulate the tobacco market.

We develop the following hypotheses:

- *The size of ITT in a country will be small where its logistics performance is high. It is also expected that the size of ITT in a country will be small if its enforcement capability is strong.*

- *It is anticipated that the size of ITT in a country will not be affected directly by the level of taxation on tobacco products. In other words, a country with strong enforcement capability can increase taxation on tobacco products while preventing the development of ITT by implementing and exercising effective regulatory measures.*

### 3. Methodology

#### 3.1. Data collection

In order to test the hypotheses, quantitative data was collected from various secondary sources. First, for the analysis of the strength of law enforcement, the ITT index created by Ulep et al. (2021) was analysed. They constructed the index to assess the potential capability of 160 nations to control and manage ITT by identifying and measuring 29 factors such as the level of corruption, the strength of public administration, and regulations on tobacco products. The higher score indicates that a country has more capability to manage ITT. These factors do not include such elements as cultural values or social norms, and thus, as the researchers assert, it should be noted that this index is not a measurement for the actual effectiveness of particular nations to tackle ITT.

Moreover, the overall logistics performance index by the World Bank (2018) was included in the analysis to enable a specific consideration of the efficiency of customs administration. This index, that was created based on the survey conducted with logistics professionals, illustrates the differences across 160 nations in efficiency with regard to logistics process such as port processing, customs clearance, and time and costs involved in these procedures. The higher score indicates that a country is more efficient in terms of logistics related issues.

Next, the data on the estimated size of ITT was retrieved from the Euromonitor International (2015, as cited in Chaloupka et al., 2015), though it was modified with the specific country data from the World Bank (2019) for some countries. The size of ITT is calculated in percentage of illicit tobacco products in the total tobacco consumption. As the Euromonitor International has been funded by the tobacco industry since 2019 (Gallagher & Gilmore, 2019), it should be appropriate to modify the data when there is a conflict with other independent research sources. For example, the figure of 18% for Cameroon was replaced by 41%, while the near 30% in Ireland was replaced by 13%. Obviously, it is difficult to estimate the actual size of ITT due to its criminal nature, but these modifications would be justifiable considering the credibility issues regarding the industry funded research raised by Gallagher et al. (2019).

Then, the effect of high taxation on ITT was examined using the above estimate of ITT and the data on the percentage of the taxation on tobacco products in each country retrieved from WHO (2021).

Finally, any country that was not included in any of the datasets were excluded from the analysis, resulting in the sample size of  $N = 74$ .

#### 3.2. Data Analysis

First, a multiple linear regression analysis was conducted using Excel Data Analysis Tools to examine whether the estimated size of ITT is related to the ITT index and the Logistics performance index. Then, a simple linear regression analyses was conducted with each independent variable in relation to the size of ITT. Next, a simple linear regression analysis was conducted to examine the relationship between the rate of taxation on tobacco products and the size of ITT. Finally, another simple linear regression analysis was conducted to examine whether there is any relationship between the ITT index and the rate of tobacco taxation.

### 4. Conclusion

The ANOVA result of the multiple linear regression analysing the relationship between the size of ITT and the level of the ITT index, together with the Logistics performance index showed statistical significance of  $F(2,71) = 9.95$ ,  $p < .001$ , which indicated that at least one of the independent variables was highly correlated with the size of ITT. While the Logistics performance index was highly related to the size of ITT at  $p = .017$ , the ITT index was not significant ( $p = .78$ ), and therefore, the efficiency of logistics procedures was considered to be a more effective indicator of the size of ITT. However, when both variables were examined individually in relation to the size of ITT in a simple linear regression analysis, both indexes demonstrated statistical significance at  $p < .001$  (Figure 1 and Figure 2).

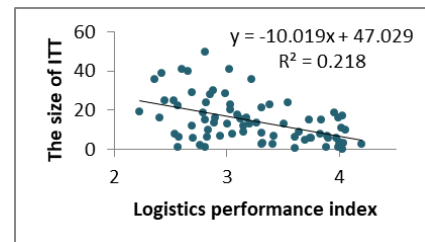


Figure 1. ITT and the logistics performance index

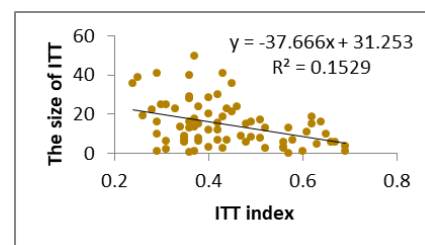


Figure 2. ITT and the ITT index

Next, the result of the simple linear regression analysis examining the effect of higher tax rates on the size of ITT actually demonstrated that there was a negative relationship at a statistically significant level at  $p = .025$  (Figure 3). This indicated that higher taxation on tobacco products would not necessarily lead to the expansion of ITT. Finally, when examined whether countries with a higher capability to control ITT impose higher taxation on tobacco products, the result demonstrated the positive correlation at a statistically significant level at  $p = .006$  (Figure 4).

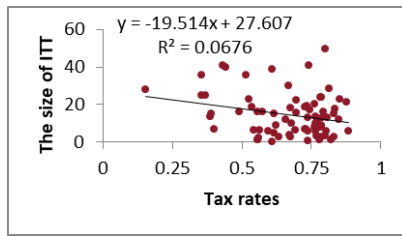


Figure 3. ITT and the tobacco taxation

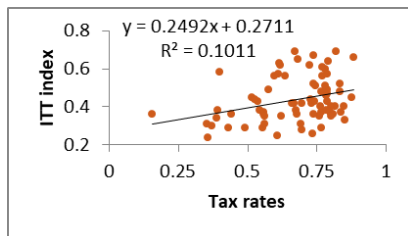


Figure 4. ITT index and tobacco taxation

It should be noted that the coefficient of determination, also referred to as R-squared, were very low in these data analyses. However, Moksony (1999) argues that the level of R-squared is irrelevant when examining correlational phenomena in social science. Indeed, it would be impossible to include all the relevant factors, known and unknown, in regression models in order to be able to predict the likely output accurately. Therefore, as the objective of this paper was to see whether any of these independent variables correlates with the size of ITT, the low level of R-squared should be acceptable.

## 5. Discussion

The main argument of this paper is that the extent, efficiency, and vigour of market regulation regarding tobacco products are the crucial elements that enable the governments to control and manage ITT. Overall, the results supported both two hypotheses. First, it was demonstrated that the countries that established efficient logistical systems as measured by the Logistics performance index have a smaller size of ITT. Next, the results also showed that the size of ITT tends to be smaller in places where the administrative institutions are stronger as measured by the ITT index. Finally, it was hypothesised that higher taxation on tobacco products would not prompt expansion of ITT. The results again illustrated that the countries with more effective law enforcement capability have managed to increase taxation on tobacco products while preventing the development of ITT.

Understanding the importance of administrative strength when implementing tobacco control policies is vital for governments. For example, although it is acknowledged that higher taxation on tobacco products is most cost-effective strategy to reduce smoking prevalence (WHO, 2014), as tobacco products being repugnant market where the demand for the products is large, simply imposing high taxation on tobacco products might result in an expansion of illicit trade (Gu et al. 2022). When such a negative consequence is anticipated, the tobacco related regulations need to be strictly enforced and observed. As the results demonstrated, many countries with high taxation on tobacco products have been managing to suppress ITT due to the stronger law enforcement capability, while some countries have failed to do so regardless of the tax rates. Moreover, as illicit tobaccos are mainly traded across borders due to the differences in retail prices, the weak law enforcement of some governments can undermine the

international effort to eradicate ITT. For example, Vietnam saw the decline in ITT within the country after it increased the taxation, but more tobacco products have been smuggled out of the country (Nguyen et al. 2020). This could indicate that, while the capability of a country to control ITT as measure by the ITT index might be more related to the control issues within the nation, the efficiency of logistics procedures as measure by the Logistics performance index can more directly related to the cross-border transactions. As OECD/EUIPO (2018) illustrated, an economy with high number of active free trade zones experiences increased level of illicit trade. Moreover, the World Bank (2020) reported that the efficiency of customs administration should be improved by simplifying and computerising the operation in order to reduce opportunities for corruption. Therefore, the efficiency and transparency in customs and border control are of special importance.

In order to discourage criminals to enter ITT, it would also be necessary to impose stricter penalties for ITT (Financial Action Task Force, 2012). However, the implementation of such laws is often prevented by the industry that has established too close a relationship with the governments in exchange for offers of financial contributions (Assunta, 2021). Moreover, cultures and social norms that tolerate anti-social behaviours would compromise the law enforcement effort even when such strict laws were implemented (Acemoglu & Jackson, 2017).

## 6. Conclusion

This research appears to confirm the argument that the development of ITT is a reflection of the level of inefficiency in administrative procedures, together with the ineffectiveness of law enforcement of some governments, rather than a consequence of the imposition of increasingly higher taxation on tobacco products. First, countries that have established efficient logistics systems in terms of goods handling and custom clearance at ports tend to experience a lower degree of ITT. Second, countries that have demonstrated a strong law enforcement capability are more likely to be able to manage ITT. Finally, those countries with strong law enforcement capability can also increase taxation on tobacco products while suppressing the development of ITT. While individual national efforts to tackle ITT illustrate valuable contributions to the challenges, as ITT is typically a problem across rather than within borders, the inefficiency and ineffectiveness of enforcement by some nations can undermine the international effort to suppress ITT. Moreover, since the economy has become progressively globalised while nations are now more interdependent as seen in the examples of custom transit and free trade zones, additional cooperation and coordination is required to manage illicit trade in general.

Then, there are several limitations to this research. Firstly, despite the potential critical importance, factors in relation to culture and social norms were not included in the data analysis. Indeed, such factors can be significant contributing elements that assist in the interpretation of the differentiation between the level of corruption and the efficiency of law enforcement between nations. Therefore, further research will be required that includes a critical evaluation of the impact of such cultural factors. Secondly, further research will be required on the extent to which the geographical location of countries may influence the size of ITT. Even if a particular country has become highly competent with regard to the control of ITT, it would still require more effort where it has multiple borders. Finally, the size of ITT remains just an estimate, while the data made available can vary significantly dependant on the source and methods used in the analysis.

## Author Contribution Rate Statement

The study was carried out equally by both authors.

## Conflict of Interest Statement

There is no conflict of interest between the authors in the study.

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## References

- Abadinsky, H. (2010). *Organized Crime* (9<sup>th</sup> ed.). Wadsworth.
- Acemoglu, D., & Jackson, M. O. (2017). Social norms and the enforcement of laws. *Journal of the European Economic Association*, 15(2), 245–295. <https://doi.org/10.1093/jeaa/jvw006>
- Alvarez & Marsal. (2021). *Causes and control of illegal tobacco*. [https://www.alvarezandmarsal.com/sites/default/files/causes\\_and\\_control\\_of\\_illegal\\_tobacco\\_-\\_third\\_edition\\_2021.pdf](https://www.alvarezandmarsal.com/sites/default/files/causes_and_control_of_illegal_tobacco_-_third_edition_2021.pdf)
- Assunta, M. (2021). Global tobacco industry interference index 2021. *Global Center for Good Governance in Tobacco Control*. <https://exposetobacco.org/wp-content/uploads/GlobalTIIIndex2021.pdf>
- Chapoupka, F. J., Edwards, S. M., Ross, H., Diaz, M., Kurti, M., Xu, X., Pesko, M., Merriman, D., & DeLong, H. (2015). Preventing and reducing illicit tobacco trade in the United States. Centers for Disease Control and Prevention. <https://www.cdc.gov/tobacco/stateandcommunity/pdfs/illicit-trade-report-508.pdf>
- Dutta, S. (Ed). (2019). Confronting illicit tobacco trade: global review of country experiences. *World Bank Group*.
- Euromonitor International (2018, November). Illicit trade in tobacco products. <https://www.euromonitor.com/illicit-trade-in-tobacco-products/report>
- Financial Action Task Force (2012). FATF report: illicit tobacco trade. <https://www.fatfgafi.org/media/fatf/documents/reports/Illicit%20Tobacco%20Trade.pdf>
- Gallagher, A. W. A., Evans-Reeves, K. A., Hatchard, J. L., & Gilmore, A. B. (2019). Tobacco industry data on illicit tobacco trade: a systematic review of existing assessments. *Tobacco Control*, 28(3), 334–345. <https://doi.org/10.1136/tobaccocontrol-2018-054295>
- Gallagher, A. W. A., & Gilmore, A. B. (2019). Euromonitor International now accepts tobacco industry funding: a win for PMI at the expense of research on the tobacco industry. *Tobacco Control*. <https://blogs.bmj.com/tc/2019/04/08/euromonitor-international-now-accepts-tobacco-industry-funding-a-win-for-pmi-at-the-expense-of-research-on-the-tobacco-industry/>
- Gilmore, A. B., Gallagher, A. W. A., & Rowell, A. (2019). Tobacco industry's elaborate attempts to control a global track and trace system and fundamentally undermine the illicit trade protocol. *Tobacco Control*, 28(2), 127–140. <https://doi.org/10.1136/tobaccocontrol-2017-054191>
- Gu, C., Roth, A. E., & Wu, Q. (2022). Forbidden transactions and black markets. *Mathematics of Operations Research*, 47(4), 3084–3109. <https://doi.org/10.1287/moor.2021.1236>
- Joossens, L., Chaloupka, F. J., Merriman, D., & Yurekli, A. (2000). Issues in the smuggling of tobacco products. In: J. Prabhath & F. J. Chaloupka (Eds.), *Tobacco control in developing countries* (pp. 393–406). World Bank.
- Joossens, L., & Raw, M. (2012). From cigarette smuggling to illicit tobacco trade. *Tobacco Control*, 21(2), 230–234. <https://doi.org/10.1136/tobaccocontrol-2011-050205>
- Moksony, F. (1999). Small is beautiful. The use and interpretation of R<sup>2</sup> in social research. *Review of Sociology*, (Special issue), 130–138.
- Nguyen, H. T. T., Giang, L. T., & Pham, T. N. (2020). Empirical analysis on the illicit trade of cigarettes in Vietnam. *Tobacco Control*, 29(4), 281–286. <https://doi.org/10.1136/tobaccocontrol-2019-055598>
- OECD. (2022). Recommendation of the council on countering illicit trade: enhancing transparency in free trade zones. <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0454>
- OECD/EUIPO. (2018). Why do countries export fakes?: the role of governance frameworks, enforcement and socio-economic factors. OECD Publishing. <https://doi.org/10.1787/9789264302464-en>
- Onogwu, D. J. (2018). Corruption and the efficiency of customs clearance process in selected countries. *Review of Public Administration and Management*, 6(3). <https://doi.org/10.4172/2315-7844.1000257>
- Ross, H., & Blecher, E. (2019). Illicit trade in tobacco products need not hinder tobacco tax policy reforms and increases [White Paper]. *Tobacco Economics*. [https://www.tobaccoeconomics.org/files/research/554/Illicit-Tobacco-White-Paper\\_v1.5-2.pdf](https://www.tobaccoeconomics.org/files/research/554/Illicit-Tobacco-White-Paper_v1.5-2.pdf)
- Roth, A. E. (2007). Repugnance as a constraint on markets. *Journal of Economic Perspectives*, 21(3), 37–58. <https://doi.org/10.1257/jep.21.3.37>
- Scollo, M. (2021). Arguments against tax increases promoted by the tobacco industry. In E. M. Greenhalgh, M. M. Scollo, & M. H. Winstanley (Eds.), *Tobacco in Australia: facts and issues*. Cancer Council Victoria. <https://www.tobaccoinaustralia.org.au/chapter-13-taxation/13-10-arguments-against-tax-increases-by-tobacco-industry>
- Ulep, V. G., Lavares, M. P., & Francisco, A. (2021). Measuring the capacity to combat illicit tobacco trade in 160 countries. *Globalization and Health*, 17(130). <https://doi.org/10.1186/s12992-021-00783-4>
- University of Bath (2021a). Influencing science: commissioning research and reviews. *Tobacco Tactics*. <https://tobaccotactics.org/wiki/influencing-science-commissioning-research-and-reviews/>
- University of Bath (2021b). Interference by the tobacco industry and its allies. *Tobacco Tactics*. <https://tobaccotactics.org/wiki/international-tax-and-investment-center>
- University of Bath (2021c). Tobacco smuggling. *Tobacco Tactics*. <https://tobaccotactics.org/wiki/tobacco-smuggling/>
- Vellios, N., van Walbeek, C., & Ross, H. (2020). Illicit cigarette trade in South Africa: 2002–2017. *Tobacco Control*, 29(4), 234–242. <http://dx.doi.org/10.1136/tobaccocontrol-2018-054798>
- Von Lampe, K. (2016). *Organized Crime: Analyzing Illegal Activities, Criminal Structures, and Extra-Legal Governance*. SAGE.
- World Bank. (2018). Logistics performance index: Overall (1=low to 5=high). <https://data.worldbank.org/indicator/LP.LPI.OVRL.XQ>
- World Bank. (2019). *Confronting illicit tobacco trade: a global review of country experiences*. <https://documents1.worldbank.org/curated/en/677451548260528135/pdf/133959-REPL-PUBLIC-6-2-2019-19-59-24-WBGTobaccoIllicitTradeFINALvweb.pdf>
- World Bank. (2020). Enhancing government effectiveness and transparency: the fight against corruption. <https://documents1.worldbank.org/curated/en/235541600116631094/pdf/Enhancing-Government-Effectiveness-and-Transparency-The-Fight-Against-Corruption.pdf>
- World Customs Organization. (2017). WCO News: council 2017, transit, e-commerce, fragile borders. [https://mag.wcoomd.org/uploads/2018/05/WCO\\_News\\_84\\_2.pdf](https://mag.wcoomd.org/uploads/2018/05/WCO_News_84_2.pdf)
- World Health Organization. (2014). Raising taxes on tobacco. <https://www.euro.who.int/en/health-topics/disease-prevention/tobacco/world-no-tobacco-day/2014-raise-taxes-on-tobacco>
- World Health Organization. (2015). Combatting illicit trade. <https://www.euro.who.int/en/healthtopics/diseaseprevention/tobacco/publications/key-policy-documents/who-framework-convention-on-tobacco-control-who-fctc/key-areas-of-tobacco-control-policy/combating-illicit-trade>
- World Health Organization. (2021). WHO report on the global tobacco epidemic, 2021: addressing new and emerging products. <https://www.who.int/publications/i/item/9789240032095>