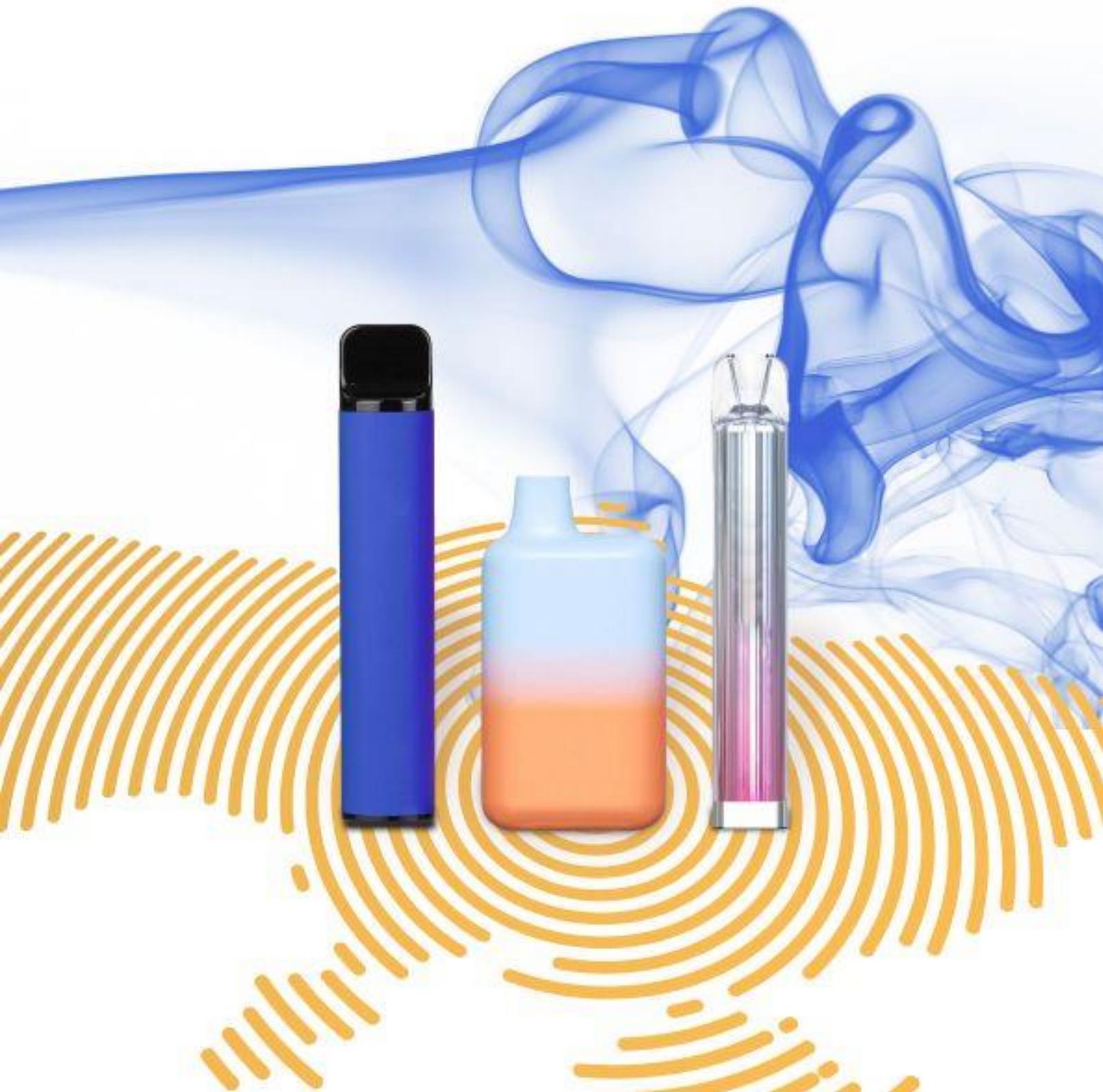


E-LIQUID ILLICIT TRADE: PREREQUISITES, TRENDS, COUNTERMEASURES



Writing team:

Tetiana Vasylivna Koshchuk, Ph.D. in Economics (head of the writing team)

Mykola Dmytrovych Pasichnyi, Doctor of Economics, Professor

E-liquid illicit trade: prerequisites, trends, countermeasures. T. Koshchuk, M. Pasichnyi / edited by T. Koshchuk, Growford Institute, K: 2024

The publication examines the prerequisites and trends in the formation of the illegal market for e-liquids, the peculiarities of excise taxation of these products and counteraction to illicit trade in them; The publication summarizes foreign experience in the relevant field, analyzes the dynamics of the level of e-liquid illicit trade in Ukraine and the factors that caused it; It reveals the practice of domestic abuse of illegal vaping products and suggests measures to counteract them.

CONTENTS

INTRODUCTION.....	4
1. E-liquid illicit trade: the origins of the problem and global trends	5
<i>1.1. Prerequisites for the formation of the illegal market of e-liquids</i>	<i>5</i>
<i>1.1.1. Peculiarities of excise taxation of vaping products</i>	<i>6</i>
<i>1.1.2. Drivers of the illicit trade in e-liquids.....</i>	<i>11</i>
<i>1.2. Analyzing the experience of countries as benchmarks and warnings for Ukraine</i>	<i>12</i>
2. Dynamics of the level of illicit trade in e-liquids in Ukraine and the factors that caused it.....	20
<i>2.1. Estimates of the illegal market for e-liquids</i>	<i>20</i>
<i>2.2. Changes during a full-scale war.....</i>	<i>28</i>
3. Practice of domestic abuse in relation to illegal vaping products	30
<i>3.1. Analysis of the methods of illegal trafficking</i>	<i>30</i>
<i>3.2. Measures to counteract the illicit trade in e-liquids.....</i>	<i>34</i>
CONCLUSIONS.....	40
REFERENCES.....	45
ANNEXES	49

INTRODUCTION

The state economic policy is highly effective when its measures are reasonable, consistent, and systematic. In this case, public trust in the state and its institutions increases and economic expectations improve, which is crucial for sustainable development. A certain indicator of the trust of economic agents in the state in general and fiscal policy in particular is the indicator of the shadow economy, which is inherent in all countries of the world. To counteract it, a wide range of institutional, fiscal, law enforcement, and other measures are used.

Ukraine is increasingly facing an acute shortage of budgetary resources. The de-shadowing of the economy, especially the markets for excisable goods, will increase tax revenues by tens of billions, which are necessary to strengthen the defense capability of our country. Despite the overall increase in revenues from the excise tax on tobacco products, the irrecoverable losses from illegal cigarette trafficking since the beginning of the full-scale invasion have exceeded UAH 50 billion! The International Monetary Fund¹ is paying attention to the urgency of this problem in Ukraine.

Conventional cigarettes are the most common today. At the same time, the market of *electronic cigarettes (e-cigarettes, vapes)*, which has been developing rapidly and chaotically for a long time, is gaining more and more popularity and share in Ukraine and the world. The delay in the proper regulation of this market of excisable goods, followed by the introduction of a number of bans on the use of certain types of vapes, led to a high level of shadowing. Even in countries with a high level of efficiency of the authorities, the illegal e-cigarette market can exceed 90% (Australia is a good example).

The Ukrainian market is no exception, with the share of illegal vaping products since the taxation of liquids used in electronic cigarettes (e-liquids) exceeding 75% of the total market capacity since 2021. High demand among the public, especially for the use of already banned flavored e-cigarettes, and the rising cost of tobacco products are significant factors for the presence of illegal products on the market. The authors of the study focus on the justification of measures to counteract the illicit trade in e-liquids, taking into account international experience.

¹ Ukraine: Fourth Review of the Extended Arrangement under the Extended Fund Facility, Request for Modifications of a Performance Criterion, and Financing Assurances Review-Press Release; Staff Report; and Statement by the Executive Director for Ukraine URL:

<https://www.imf.org/en/Publications/CR/Issues/2024/06/28/Ukraine-Fourth-Review-of-the-Extended-Arrangement-under-the-Extended-Fund-Facility-Request-551207>

1. E-liquid illicit trade: the origins of the problem and global trends

Today, the peculiarities of the functioning of illegal markets for conventional cigarettes are well understood, but shadow markets for newer nicotine products, primarily electronic cigarettes (e-cigarettes, vapes), are also forming. These markets require special attention and research into the conditions and specifics of their existence.

1.1. Prerequisites for the formation of the illegal market of e-liquids

The emergence of vapes about two decades ago was part of the transformation of the global tobacco market. E-cigarettes used as an alternative to smoking usually contain nicotine, glycerin, flavorings, or other chemicals². The process of consuming them does not fall under the definition of "smoking", as there is no combustion of tobacco (e-cigarettes do not contain it; they are *not tobacco products*), but a special solution is heated to a certain temperature and the mentioned above substances enter the human body as an aerosol (not smoke). E-cigarettes are heating devices with correspondent liquids for them (which are consumed; abbreviated as e-liquids) (Fig. 1). The current e-cigarette market is characterized by a wide variety of products (Appendix A).

Electronic cigarettes



Fig. 1. Physical characteristics of electronic cigarettes

There is another common new nicotine product that should not be confused with e-cigarettes – heat-not-burn products or heated tobacco products (hereinafter referred to as HTP). HTPs are not a liquid, but tobacco sticks that are heated by

² Grana R, Benowitz N, Glantz SA. E-cigarettes: a scientific review. *Circulation*. 2014;129(19):1972-1986.

heating devices. The sticks and devices form a tobacco heating system that produces an aerosol for inhalation (Fig. 2). We have a separate study on³ HTPs.

Unlike conventional cigarettes, which involve the burning of tobacco and the release of nicotine



E-cigarettes heat a liquid (chemical solution) containing nicotine (or nicotine-free), propylene glycol, vegetable glycerin, water, and flavorings (or no flavorings)

Heating systems do not burn tobacco, but heat it to a certain temperature, which results in the release of nicotine

Fig. 2. Differences between conventional cigarettes, vapes, and HTPs

In 2023, global e-cigarette revenues amounted to USD 24.6 billion and show a steady upward trend. Revenues of the global vaping industry are expected to increase by 5.8% by the end of 2024⁴.

The growth of the vape market as an alternative to conventional cigarettes prompted the introduction of taxation, and the introduction of excise taxes and a number of bans were the main reasons for the development of the illegal market.

1.1.1. Peculiarities of excise taxation of vaping products

South Korea became the first country in the world to start taxing vaping products on January 1, 2011. The legislation of this country has defined "*electronic tobacco*" as tobacco that provides a similar effect to smoking by using an electronic device that transmits nicotine through the respiratory tract.

In Europe, Italy was the first country to start taxing liquids used in e-cigarettes. In 2013, the relevant legislation on excise taxation of e-liquids was developed and came into force on January 1, 2014. Later, this practice was actively spread among European countries. Portugal, Romania, Slovenia, Latvia, Hungary, Finland, and Greece were among the first EU countries to introduce taxation of e-liquids.

³ Excise policy and the illicit trade in tobacco products: in search of balanced solutions. T. Koshchuk, M. Pasichnyi / edited by T. Koshchuk, Growford Institute, K: 2024. URL: <https://www.growford.org.ua/research/aktyzna-polityka-i-nelegalna-torgivlya-tyutyunovymy-vyrobamy-u-poshu-kah-zbalansovanyh-rishen/>

⁴ E-Cigarettes – Worldwide. URL: <https://www.statista.com/outlook/cmo/tobacco-products/e-cigarettes/worldwide>

In Ukraine, vape taxation began in January 2021, when the amendments to the Tax Code of Ukraine (the "TCU"), established by the Law of Ukraine "On Amendments to the Tax Code of Ukraine on Improving Tax Administration, Eliminating Technical and Logical Inconsistencies in Tax Legislation" No. 466-IX of January 16, 2020, came into force. According to these amendments, the list of excisable goods has been expanded to include liquids used in electronic cigarettes.

The TCU clearly defines these liquids as liquid mixtures of chemicals containing or not containing nicotine, used to create vapor in electronic cigarettes and are contained, in particular, in cartridges, refill containers and other containers. The excise tax rate on e-liquids is set in UAH per liter of product, starting from January 1, 2023, it is 10,000 UAH/1 liter; In 2021-2022 the excise tax rate was 3000 UAH/1 liter.

The experience of foreign countries shows a wide variety of approaches to taxation of vaping products. The tax base may be:

- Liquid used in e-cigarettes, depending on the volume;
- Cartridges for e-cigarettes;
- E-cigarette devices themselves;
- Amount of nicotine in the e-liquid;
- Volume of e-liquid depending on the nicotine content;
- Volume of e-liquid depending on the nicotine salt content;
- Volume of e-liquid depending on the type of e-cigarette device.

Note that in world practice three approaches to excise taxation of vaping products are used. By means of: a) a specific tax rate; b) an ad valorem rate (and sometimes VAT in non-European countries); c) a combination of the above approaches. The third approach is used to tax vape liquids in Israel and Egypt.

Under *Israeli* law, the ad valorem rate for liquids used to refill e-cigarettes is 270% of the regular wholesale price. In addition, a specific rate of NIS 11.39 (equivalent to USD 3.07) per 1 ml of e-liquid is applied. It has been determined that the minimum tax liability for this type of product is equivalent to NIS 21.81 / 1 ml of e-liquid (USD 5.89 / 1 ml). For disposable e-cigarettes, the ad valorem rate is set at 360% of the regular wholesale price, but at a level not lower than NIS 32.72 per unit. That is, the minimum tax amount for 1 disposable e-cigarette is USD 8.83⁵.

At the same time, tax exemptions from sales tax on e-cigarettes and e-liquids apply to imported products in the amount not exceeding USD 75 for personal use of the said devices. It is worth noting that Israel has introduced an additional tax on stocks of e-liquids and disposable e-cigarettes if the tax burden of taxable vaping

⁵ Israel Tax Authority. URL: https://www.gov.il/en/pages/sa211121_1

devices exceeds NIS 10,000 (USD 2,700). The amount of this tax for sellers of excisable products is set at NIS 1 per 1 ml of e-liquid and NIS 6 per piece of disposable e-cigarette.

In **Egypt**, electronic nicotine delivery systems (ENDS), known as e-cigarettes, are the third most popular form of tobacco and alternatives consumption after conventional cigarettes and pipes. The prevalence of smoking in Egypt is on a steady upward trend, and the market for vapes as an alternative to smoking is expanding. E-liquids are taxed at a specific rate. In addition, at the end of October 2023, the Egyptian authorities introduced a new VAT tax for local sales of tobacco products (which also included vapes).

A mixed system of taxation of vaping products is typical for certain states in the **United States**. For example, New Jersey imposes an ad valorem tax on containers for e-liquids (10% of their retail value), with the seller acting as the tax agent; And there is a specific rate for e-liquids containing nicotine.

The ad valorem excise tax rate for e-cigarettes is also applied in Bahrain, Ecuador, Jordan, Nepal, and Saudi Arabia. An additional sales tax rate of 20% is provided for vaping products in New York State. An ad valorem rate of 92% of the wholesale price applies to e-cigarette devices and all types of e-liquids in Vermont.

The most common global practice of taxing e-liquids is to apply a specific excise tax rate depending on the volume of the liquid. This practice is used in EU member states, the United Kingdom, Norway, Albania, Azerbaijan, Kazakhstan, Kyrgyzstan, South Korea, Serbia, Montenegro, and others.

In **South Korea**, in addition to a specific excise tax rate on e-liquids, a specific excise tax has been introduced on cartridges that are used to refill e-cigarettes. This type of tax is a *waste tax*. It is worth noting that in South Korea, this tax applies to all types of cartridges: for e-liquids with or without nicotine. For electronic non-nicotine-delivery systems (ENNDS), no other taxes apply, except for the pollution tax. Instead, there are four types of specific excise taxes for electronic nicotine delivery systems (ENDS):

- Tax on tobacco consumption;
- Local education tax;
- Fee to the *National Health Promotion Fund*;
- Individual consumption tax⁶.

For all four cases, the tax base is the volume of e-liquid containing nicotine. An important priority of the state policy in the field of taxation of vaping products, in addition to fiscal, is the protection of public health, which is confirmed by a separate tax deduction to the above-mentioned trust fund.

⁶ Gathoo, T. (2022). *The Taxation of E-cigarettes: An International Comparison* (Doctoral dissertation, University of Johannesburg).

In *Kenya*, until July 1, 2022, a tax with a specific rate was in effect on e-cigarette refill cartridges and e-cigarette devices. Subsequently, based on the practical experience of taxing vaping products, this mechanism was changed. Today, there is a specific excise tax on e-liquids, which has been introduced in the vast majority of countries where e-cigarettes are allowed to be sold. At the same time, the e-cigarette device is taxed at an ad valorem rate of 40% of its value.

Currently, excise taxes on e-liquids have been introduced in **18 EU countries, but they are not harmonized**. The European Commission recognized the right of countries to introduce non-harmonized excise taxes for these products, but refrained from providing recommendations on their taxation until the information gaps are better filled in on: the peculiarities of the spread of e-liquids in the EU market; problems that may arise in the field of tax administration; and the impact of e-cigarette use on human health⁷.

Approaches to the excise tax on e-liquids in the EU differ, with nicotine and non-nicotine liquids being taxed. *Italy* applies differentiated excise rates (depending on whether the liquid contains nicotine), which are calculated based on the weighted average retail price of conventional cigarettes. In *Denmark* and *Sweden*, only nicotine-containing e-liquids are taxed, and the amount of excise duty depends on the concentration of this substance. *Bulgaria* and *Romania* have established an excise tax on e-liquids with nicotine, but at a flat rate. Such approaches take into account the potential of vapes to overcome nicotine addiction. It won't be if the e-liquid is nicotine-free; Higher nicotine concentration means greater addiction. *Latvia*, on the other hand, switched from a differentiated excise tax to a single tax rate for all liquids in 2023. Today, this is the most common practice in the EU. In *Croatia*, e-liquids are classified as excisable goods, but a zero tax rate is applied to them (Table 1).

Table 1

**Approaches to excise taxation of liquids for electronic cigarettes
in EU countries in 2024.**

Country	Excise rate in national currency / ml	Excise tax rate in euros / ml	Tax base
Greece	0.10	0.10	Volume of liquid
Belgium	0.15	0.15	Volume of liquid
Bulgaria	0.35	0.18	Volume of liquid with nicotine
Estonia	0.21	0.21	Volume of liquid
Italy	0.21	0.21	Volume of liquid with nicotine

⁷ Report from the Commission to the Council on Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco. 12.01.2018. URL: https://ec.europa.eu/taxation_customs/sites/taxation/files/report_excise_duty_manufactured_tobacco_12012018_en.pdf

	0.17	0.17	Volume of liquid without nicotine
Cyprus	0.12	0.12	Volume of liquid
Latvia	0.24	0.24	Volume of liquid
Lithuania	0.25	0.25	Volume of liquid
Germany	0.20	0.20	Volume of liquid
Poland	0.55	0.12	Volume of liquid
Portugal	0.351	0.351	Volume of liquid with nicotine
	0.175	0.175	Volume of liquid without nicotine
Romania	0.81	0.16	Volume of liquid with nicotine
Slovenia	0.70	0.70	Volume of liquid with nicotine
	0.31	0.31	Volume of liquid without nicotine
Hungary	33	0.08	Volume of liquid
Croatia	0	0	Volume of liquid
Finland	0.30	0.30	Volume of liquid
Denmark	1.5	0.20	Volume of liquid with nicotine
	2.5	0.33	Highly concentrated liquids containing nicotine
Sweden	2.02	0.18	Volume of liquid with nicotine
	4.04	0.36	Highly concentrated liquids containing nicotine

Source: European Commission. Taxes in Europe Database. URL: https://trade.ec.europa.eu/access-to-markets/en/content/excise-duties#toc_3

Germany introduced an excise tax on e-liquids on July 1, 2022, with a relatively low rate of EUR 0.16/1 ml. However, it is to increase annually until it reaches the level of EUR 0.32/1 ml on January 1, 2026⁸. But there are also countries that have not revised their excise tax rates for a long time.

In EU countries, the excise tax burden on e-liquids is significantly lower than on conventional cigarettes (CCs).

Under certain circumstances, excise taxation may lead to the formation of an illegal market for e-liquids. Given the peculiarities of the tax control system and the physical characteristics of vapes, the functioning of this market has its own peculiarities.

⁸ Germany's New Tobacco Tax Laws. URL: <https://www.ruthlessvapor.com/blogs/ruthless-e-liquid/germanys-new-tobacco-tax>

1.1.2. Drivers of the illicit trade in e-liquids

Since Ukraine has chosen to join the EU, let's consider this issue in the context of European integration. In 2020. The European Commission has concluded that different approaches to excise taxation of e-liquids may lead to the formation of illegal markets. The following arguments are presented to substantiate this position⁹:

1. *Difference in excise taxes as a risk of market shadowing.* The imposition of high excise taxes on e-liquids in some EU countries is leading to a significant increase in their prices and a shift in consumers' purchases to cheaper products. Monitoring the prices of e-liquids in popular online stores in the EU has shown the existence of *a significant number of cross-border e-commerce sites (numerous illegal operators) that offer products at prices without excise duty*, which are significantly lower than those of national operators.

Foreign traders selling products in certain countries should be subject to the same tax regime as domestic traders, but *the lack of effective mechanisms to control cross-border sales and the widespread use of e-commerce allow them to avoid paying taxes* in these countries. Prompt taxpayers also have transaction costs associated with registration with tax authorities, licensing, setting up tax warehouses, paying import duties, ordering excise stamps, etc. As a result, national market operators are placed in unequal competitive conditions with illegal sellers.

2. *Lack of tools to control product turnover.* Since e-liquids are outside the scope of the EU harmonized taxation system, Member States are deprived of the tools they effectively use to control the circulation of harmonized tobacco products. *Due to the physical characteristics of e-cigarette liquids, they are much easier to move across customs borders than conventional cigarettes, and customs authorities have limited technical means to control small shipments made by courier delivery services and to conduct expert analysis to determine the composition of the liquids.*

Improving the effectiveness of e-liquid control measures requires the allocation of significant amounts of funding. Most EU countries are not ready to do this, as it requires partial diversion of resources from the fight against smuggling of conventional cigarettes. This impedes the implementation of the principle of inevitability of punishment for the committed offense.

3. These difficulties lead to a *loss of budget revenues.*

In general, there is concern in the EU about possible non-compliance with tax laws, as e-liquids (and pure nicotine) can easily move across borders, avoiding control. In addition, other *ingredients of e-liquids, such as glycerin and flavors*, are

⁹ Commission staff working document. Evaluation of the Council Directive 2011/64/EU of 21 June 2011 on the structure and rates of excise duty applied to manufactured tobacco. February 2020. URL: https://ec.europa.eu/taxation_customs/sites/taxation/files/10-02-2020-tobacco-taxation-report.pdf?fbclid=IwAR1uqPEEeWpOAOQsnJmY3ngW1P7uFKPCri2mWumz9GXX9CZWptBEmmO9JJgc.

widely used by a number of industries (food, medicine, cosmetics), and therefore their circulation is not subject to special regulation. Such substances ***are easily available to manufacturers of illegal e-liquids***, and can also be used by consumers to independently prepare liquids (with any composition of the mixture). The latter products are particularly dangerous, as discussed in Cl. 1.2.

Serious problems arise if certain types of vapes are banned after they have become popular on the national market. Their consumption cannot be stopped at once, which increases the risks of shadowing the relevant market, especially in the context of insufficient institutional capacity of controlling authorities. If such an illegal product is distributed, we still have to talk about the loss of tax revenues, since banned e-liquids are an alternative to consuming unbanned legal tobacco products. The worst situation is when both budget revenues are lost and public health goals are not achieved. Unfortunately, as described in Chapter 2, this is exactly what happened in Ukraine, which requires increased attention to the issue of combating illicit trade in e-liquids.

1.2. Analyzing the experience of countries as benchmarks and warnings for Ukraine

The e-cigarette market is developing quite rapidly and chaotically. Despite the fact that *the main task of creating vapes was to provide smokers with a less harmful alternative, nicotine-free e-liquids are also becoming more widespread*. The consequences of using these particular liquids are the most debated in medical establishment. On the one hand, *if the liquid is nicotine-free, it does not cause nicotine addiction; vapes are even used to get rid of this addiction*. On the other hand, the effects of glycerin, food flavors, and other liquid ingredients on the lungs are not fully understood. However, *it is particularly dangerous when vaping products allow you to mix liquids or add components (e.g., cannabinoids) to them*. The latter applies to both open-type self-filling e-cigarettes and cartridge vapes, which are classified as closed-type systems, but in practice do not exclude the mixing of substances. In addition, *it is impossible to control the composition of illegal vapes* (even those that are both nominally and actually closed systems)¹⁰.

Let's consider these and other features of the e-liquids market and government policy in this area, using examples from foreign experience.

Between 2012 and 2023, the number of vape users in ***the UK*** increased almost 6-fold to 4.7 million people (Table 2).

¹⁰ It is important that society is informed about these risks.

Table 2

Number of e-cigarette users in the UK

Year	Share of the population consuming vapes, %	Number of smokers, million people			
		Smoke cigarettes	Quit smoking cigarettes	Never smoked	In total
2012	1.7	0.6	0.2	0.03	0.8
2013	2.7	0.9	0.4	0.08	1.3
2014	4.2	1.4	0.7	0.04	2.1
2015	5.4	1.6	1.0	0.05	2.7
2016	5.7	1.5	1.4	0.05	2.9
2017	5.8	1.3	1.5	0.09	2.9
2018	6.2	1.4	1.6	0.13	3.2
2019	7.1	1.5	2.0	0.22	3.6
2020	6.3	1.2	1.9	0.09	3.3
2021	7.1	1.1	2.4	0.18	3.7
2022	8.3	1.5	2.5	0.35	4.3
2023	9.1	1.7	2.7	0.32	4.7

Source: compiled according to ASH Smokefree Great Britain

At the same time, *the growth of the vape market is accompanied by the expansion of its shadow component*. This is evidenced by the data of the Border Guard Service on the number of seized contraband e-cigarettes: 4,400 pcs in 2021, 988,000 pcs in 2022, 4,538,000 pcs in 2023¹¹. Thus, for every 1 consumer of vaping products, there is 1 seized contraband e-cigarette. In addition, about 1 million e-cigarettes were seized from points of sale by representatives of *the Trading Standards* authority.

In recent years, *the vaping industry has been developing dynamically with the support of the UK government and public health authorities*. The demand in society for these smokeless alternatives has grown rapidly. The main reasons for vape use among people who quit smoking CCs are: a) to help quit smoking altogether (31%); b) to prevent a relapse to cigarette smoking (22%). Among the group of respondents who consume both conventional and e-cigarettes, the reasons for vaping are: a desire to reduce tobacco use (19%); a desire to quit smoking (17%).

The UK government's initiatives are aimed at ensuring the transition from conventional smoking products to smokeless alternatives and effectively counteracting the illegal tobacco market. At the same time, illegal importers and producers seek to saturate the market with cheaper alternatives, bypassing legislation and government oversight that protect consumers of legal vaping products¹². Counterfeit

¹¹ Over four million illegal vapes seized at border. URL: <https://www.bbc.com/news/business-68099182>

¹² The Dangers of Black Market Vaping Products. URL: <https://www.vapesuperstore.co.uk/blogs/news/the-dangers-of-black-market-vaping-products>

vaping devices and the supply of illegal e-liquids on the market cause significant damage. Consumer surveys indicate a low level of awareness of the standards of regulation of tobacco products and their alternatives, as well as the difference between legal and illegal products. In particular, more than 50% of respondents indicated that they were not aware of the *Tobacco Products Directive*, which regulates the standards, content, and quality of e-cigarettes¹³. This Directive restricts:

- The volume of tanks for electronic cigarettes: 2 ml;
- The maximum volume of nicotine-containing e-liquid for electronic cigarettes in one refill container: up to 10 ml;
- The nicotine content in e-liquids: no more than 20 mg/ml;
- Packaging of this type of product should be protected from access by children;
- Prohibition of various dyes, caffeine, and taurine in e-liquids;
- All e-cigarettes and e-liquids must be listed by the state *Medicines and Healthcare products Regulatory Agency*.

According to the above requirements for the capacity of e-cigarettes, it is determined that one e-cigarette allows a vaper to take approximately 600 puffs with a maximum nicotine concentration of 20 mg. Restrictions are applied to ensure consumer safety and compliance with uniform standards in the vaping industry. However, *the illegal market offers products that allow a person using e-cigarettes to take 10 times as many puffs (compared to the approved standard) and contain significantly more nicotine.*

The survey of vapers also showed that more than 80% of them are not aware of the potential harm from consuming illegal products; 34% of them cannot distinguish between legal and illegal vapes; 36% of respondents directly stated that the illegal market allows them to buy products at lower prices and it was good for their budget.

A serious warning for all countries is that vapes are often used by teenagers and schoolchildren. In the *United States*, according to federal surveys, the number of adolescent high school students who used e-cigarettes in 2019 was 28%, and this figure has been gradually decreasing (to 15%).

E-cigarettes are available in a variety of flavors that appeal to teenagers and have a higher nicotine concentration than a standard pack of cigarettes. Researchers at the *Truth Initiative of the Schroeder Institute* (Washington, DC) have found that the cost of nicotine in e-cigarettes tends to decrease, while the cost in conventional cigarettes is increasing. Between January 2020 and September 2022, the average

¹³ E-cigarettes: regulations for consumer products URL: <https://www.gov.uk/guidance/e-cigarettes-regulations-for-consumer-products>

price of 1 ml of e-liquids decreased by 69.2% from USD 7.96 to 2.45¹⁴. The current regulation of the e-cigarette market has led to a situation where manufacturers or importers offer consumers *cheaper disposable e-cigarettes with increasingly higher nicotine concentrations*. This makes it advisable to change the regulatory rules in terms of limiting the capacity of e-cigarettes, setting minimum prices for products, and stricter rules on the characteristics of vapes.

Even countries with highly developed institutional environments and moderate shadow economies face challenges in curbing illegal e-cigarettes. According to analytical estimates, the US e-cigarette market is worth about USD 5.5 billion¹⁵. Recent trends show that a significant share of the illegal market is smuggled, including from China. E-cigarettes with a wide range of flavors, including ice cream and fruit flavors, are in great demand in the market, which has seen the introduction of devices that allow vapers to take about 5000-6000 puffs or contain a higher proportion of nicotine. This points to gaps in market regulation and shortcomings of the *Food and Drug Administration* (FDA), the institution responsible for certifying e-cigarettes.

U.S. Senator Richard Durbin conducted a thorough study of the FDA's activities regarding "*closeout letters*" and found that since 2021, the organization has issued only about 10% of such letters out of 685 warning letters about violations of e-cigarette regulations. A closure letter indicates that the FDA confirms that appropriate action has been taken to resolve the problem or violations outlined in the warning letter. Thus, the senator concluded that the vast majority of existing violations had not been properly addressed, and the problems were systemic¹⁶. In addition, it was found that instead of reducing the volume of e-cigarettes on the market to counteract the prevalence of vaping among young people, the number of e-cigarette brands present on the market increased by 46% from 2020 to 2022.

Spot identification of illegal sales outlets does not yield tangible results. The FDA's isolated orders and fines to gas stations for selling e-cigarettes do not have the desired effect, despite the amount of the fine - about USD 19,000. Over the past three years, sales of flavored vapes have increased by 60% to 18 million units per month. For example, Chinese companies, given the imperfect market regulation and low level of institutional capacity of the FDA, have rapidly flooded the US market with flavored vapes that have become the most popular brands in the US, including *Elf Bar, EBDesign, and Lost Mary*.

¹⁴ Diaz, M. C., Silver, N. A., Bertrand, A., & Schillo, B. A. (2023). Bigger, stronger and cheaper: growth in e-cigarette market driven by disposable devices with more e-liquid, higher nicotine concentration and declining prices. *Tobacco Control*. <https://doi.org/10.1136/tc-2023-058033>

¹⁵ Illicit E-Cigarettes Flood Stores as F.D.A. Struggles to Combat Imports/ URL: <https://www.nytimes.com/2023/10/10/health/illegal-vapes-ecigarettes-fda.html>

¹⁶ Robert M. Califf, MD U.S. Food and Drug Administration 10903 New Hampshire Ave Silver Spring. URL: https://www.durbin.senate.gov/imo/media/doc/RJD%20Letter%20to%20FDA_2%20Year%20Vaping%20Delay.pdf

According to the National Youth Tobacco Survey in 2023, the Chinese *Elf Bar*, which is not authorized by the FDA, was the most popular disposable vape sold in the United States. It is estimated that illegal e-liquids in the United States account for at least 60% of the total consumption of these products. The FDA sent out hundreds of warning letters to retailers stating that it was forbidden to sell *Elf Bar*.

Illegal vaping products often enter the United States through intermediaries who buy them in countries where they are legal and then sell them to retailers. Disposable e-cigarettes are likely to circumvent federal regulations by using *de minimis* shipments. These are supplies worth less than \$800, which are allowed to be imported into the country duty-free¹⁷.

In view of the above, congressmen, state attorneys general and legal tobacco manufacturers are joining forces to counter the illegal e-cigarette market. A popular thesis discussed among policymakers is to ban all types of e-cigarettes except nicotine-containing ones in order to counteract the prevalence of vaping among young people. The focus of the discussion is that the effects of glycerin, flavors, and other ingredients in vapor on the lungs are not yet sufficiently examined.

The share of the illegal e-cigarette market in Australia has reached 90%, with the largest share of illegal products sold through specialized outlets and online trading. It is estimated that about 1.3 million Australians use e-cigarettes containing nicotine. The total market size is about USD 200 million¹⁸. The largest share of people who consume vapes is young people aged 18 to 24, with 20% of this group using these products.

Starting in 2024, Australia will ban the retail sale of all types of e-cigarettes. The only possible option for vape consumption is a doctor's prescription for the use of vapes containing nicotine to control nicotine addiction or gradually quit it (so-called therapeutic vapes). In addition, these e-cigarettes must meet the criteria set by the *Therapeutic Goods Administration (TGA)*. Starting March 1, 2024, there will be a complete ban on the import of non-therapeutic vapes.

In addition, the authorities are working to *strengthen control over all stages of the production chain and distribution of e-cigarettes* in Australia¹⁹. To support measures to counteract the spread of e-cigarettes, including illegal ones, the budget *includes additional spending for regulatory authorities*, primarily the *Australian Border Force*, to counteract e-cigarette smuggling.

¹⁷ How the US vape and snus market protects itself from illegal supplies from China. URL: <https://thepage.ua/ua/economy/rinok-vejiv-ta-snyusiv-u-ssha-zahishayetsya-vid-nelegalnih-postavok-iz-kitayu>

¹⁸ Proposed reforms to the regulation of vapes Impact Analysis. Office of Impact Analysis (OIA). October 2023. URL: <https://oia.pmc.gov.au/sites/default/files/posts/2024/01/Impact%20Analysis%20-%20Proposed%20reforms%20to%20the%20regulation%20of%20vapes.PDF>

¹⁹ Next steps on vaping reforms. URL: <https://www.health.gov.au/ministers/the-hon-mark-butler-mp/media/next-steps-on-vaping-reforms?language=en>

The practice of banning the sale of e-cigarettes is also present in EU countries. An important public health goal of many Member States is to reduce the prevalence of smoking (nicotine use).

In particular, **Belgium** has adopted the Strategy for a Tobacco-Free Generation by 2028, which aims to reduce the prevalence of smoking among people aged 18-24 to 6% or less. To achieve this goal, the government will ban the sale of disposable e-cigarettes, which are the most popular among young people, starting January 1, 2026. The relevant changes should be consistent with the *Tobacco Products Directive*. Therefore, this requires the approval of the European Commission. Accordingly, the procedures were followed, and the country received permission from the European Commission to *ban disposable e-cigarettes containing nicotine*. Today, similar efforts to ban this type of e-cigarette are underway in EU countries such as Ireland, France, and Germany.

In November 2023, **French** Health Minister O. Rousseau, presenting the National Tobacco Control Program, mentioned the government's plans to *ban the sale of disposable e-cigarettes*. According to the published information, about 15% of teenagers in France use vapes, and 47% of them first encounter nicotine through these devices²⁰. In total, 3.6 million French people are vapers; the share of people who use e-cigarettes on a daily basis is 3.4% of the total. This figure is one of the highest among European countries²¹. Such a legislative initiative must be agreed within six months with the European Commission, and if approved, such changes may come into force on January 1, 2025.

According to expert estimates, disposable e-cigarettes account for more than a third of the vaping market in **Poland**. At the same time, e-liquids containing nicotine are more popular in the country (their share in the total consumption of liquids is about 56%; 40% of nicotine liquids are of illegal origin). More than 60% of disposable e-cigarettes are illegal, and the share of illegal e-liquids used in open-ended systems does not exceed 30%. Obviously, given this consumption pattern, a ban on disposable vapes (all or nicotine-containing) could provoke significant shadowing of the Polish market.

In **Italy**, the *taxation of e-liquids* began on January 1, 2014, and the main reason for this was the decrease in excise tax revenues from tobacco products in 2013. According to the analytical data of the Italian Ministry of Economy, about 15% of the tax base was shifted to the vape market, which required legislative changes. The government decided to compensate for the budget losses by introducing high excise taxes on e-liquids. In 2014, the highest rate for this type of product in the EU was

²⁰ France to ban disposable e-cigarettes by 2025. Euractiv. 29.11.2023. URL: <https://www.euractiv.com/section/politics/news/france-to-ban-disposable-e-cigarettes-by-2025/>

²¹ State of smoking and health in France. URL: <https://globalactiontoendsmoking.org/research/tobacco-around-the-world/france/>

set at EUR 0.40/1 ml. This measure has led to a rapid growth of the illegal vape market to 75% in 2016²²; Moreover, a 70% decrease in official sales compared to the previous period was recorded back in 2015.

In order to counter the illegal e-cigarette market, the parliament banned online sales, but this step only removed about 3,000 legal vape operators from the market within 3 years. *Given the rather disappointing situation with the illegal market, Italy was forced to reduce excise rates in 2019*: by 80% for e-liquids containing nicotine – to the level of EUR 0.08/1 ml; and by 90% for e-liquids that do not contain nicotine – to the level of EUR 0.04/1 ml²³. These rates were in effect until the end of 2021. Subsequently, they still increased to a level that is half that of 2014: – for e-liquids containing nicotine – EUR 0.21/1 ml; without nicotine – EUR 0.17/1 ml.

In Italy, the *Italian Tobacco Customs Monopoly* (AAMS) is responsible for ensuring that market participants comply with the requirements of the *Tobacco Products Directive*. Italy has a court practice that indicates a tough stance of the state against violations of the rules in force in the market of tobacco alternatives. There have been court decisions on violations of consumer rights for the absence of a mention that e-liquids contain nicotine, etc²⁴. In addition, Italy is strengthening control over online sales of e-liquids containing nicotine by granting additional functional powers to the controlling authorities.

Regulation of e-cigarettes is tightening worldwide. According to the *Global center for good governance in tobacco control*²⁵, as of the end of 2023, 41 countries have banned the sale of e-cigarettes, including Argentina, Brazil, India, Iran, Colombia, Mexico, Norway, South Korea, Singapore, and Chile. 82 countries allow the circulation of e-cigarettes, but have established regulatory requirements for their sale and distribution. 38 countries out of 82 regulate the nicotine content of e-liquids; Except for the EU and the UK, such restrictions have been introduced, for example, in Albania, Canada, Israel, Iceland, Moldova, Saudi Arabia, etc.

Countries such as Finland, Hungary, Latvia, and Montenegro have banned e-cigarettes that use different flavors. 16 countries have restricted certain flavors. A significant number of countries (more than 70) have identified e-cigarettes as a unique type of product, prompting authorities to develop separate legislation to regulate legal relations in the production and circulation of these goods.

In *Canada*, the production, sale, labeling, and advertising of e-cigarettes is regulated by the *Tobacco & Vaping Products Act*. The purpose of the act is to prohibit

²² Gathoo, T. (2022). *The Taxation of E-cigarettes: An International Comparison* (Doctoral dissertation, University of Johannesburg).

²³ Italy. Ecigintelligence. URL: https://ecigintelligence.com/content_types/regulatory-briefing/?geography=italy

²⁴ Italy's courts bring the gavel down on companies violating e-cigarette ad laws. URL: <https://ecigintelligence.com/italy-courts-bring-the-gavel-down-on-companies-violating-e-cigarette-ad-laws/>

²⁵ E-CIGARETTE BAN & REGULATION: Global Status as of October. 2023. URL: https://files.ggtc.world/uploads/2024-05-27/15-35-29-349761/E-cig%20Ban%20and%20Regulation%202023_sb.pdf

the use of vapes by minors by establishing restrictions and allowing adult consumers to purchase e-cigarettes as a potentially less harmful alternative to smoking conventional cigarettes²⁶.

Taxation of e-liquids in *Latvia* started in 2016. Initially, different excise tax rates were applied to liquids containing and not containing nicotine. The rates for e-liquids containing nicotine were higher, taking into account the concentration of nicotine in the liquid. However, starting from 2023, a unified approach to the taxation of this category of excisable goods will be applied. The e-cigarette market is growing rapidly in this country, having more than tripled in size over the past decade. Given these trends, a number of legislative changes have been adopted in Latvia since 2024 regarding the vaping industry. In particular, the minimum age of e-cigarette buyers was increased from 18 to 20 years; The use of flavors in e-liquids was banned; and fines for violating the legislation on e-cigarette circulation were increased²⁷.

The example of *South Korea*, which in 2015 raised the excise tax rate on vaping products by 2.2 times, is illustrative, as it caused a rapid increase in the size of the illegal market and tax evasion. Since nicotine-free e-liquids were not taxed in this country, offers to sell nicotine that could be added to flavored e-liquids that did not contain it appeared on the market. This combination of goods allowed to reduce the level of excise duty by 95%.

All of the above is important to take into account when making relevant legislative decisions and operational measures in Ukraine.

²⁶ Government of Canada, 1997. Tobacco and vaping products act. URL: <https://www.canada.ca/en/health-canada/services/health-concerns/tobacco/legislation/federal-laws/to-bacco-act.html>

²⁷ Latvia: e-cigarette regulation, March 2024. URL: <https://ecigintelligence.com/latvia-e-cigarette-regulation-march-2024/>

2. Dynamics of the level of illicit trade in e-liquids in Ukraine and the factors that caused it

The domestic e-cigarette market is one of the largest in the world, along with the UK, Spain, Italy, Canada, China, Germany, South Korea, the US, and France. Vapes became widespread in Ukraine in 2012 and quickly "won back" a significant portion of the market from conventional cigarettes. Even according to 2019 estimates based on *Euromonitor International's* e-cigarette consumption prevalence, WHO data, and the weighted average price of such products in popular online stores, the e-liquid market was worth UAH 9.22 billion, or 2.3 billion pcs. in terms of conventional cigarettes. This amounted to 4.45% of the total market capacity of tobacco products and their alternatives²⁸.

Unlike the market for conventional cigarettes and HTPs, where the lion's share belongs to large companies, the domestic vape market is represented by numerous operators and products (Appendix A), which increases the risks of illicit trade.

The prolonged absence of state regulation and taxation of e-liquids in Ukraine has resulted in a shift in demand from taxable to non-taxable goods. Pursuant to the Law of Ukraine "On Amendments to the Tax Code of Ukraine on Improving Tax Administration, Eliminating Technical and Logical Inconsistencies in Tax Legislation" No. 466-IX dated January 16, 2020, the list of excisable goods included liquids used in e-cigarettes and an excise tax for them in the amount of UAH 3000/1 liter was established. This intensified the shadowing of the market.

A significant amount of e-liquids in Ukraine are of illegal origin. Illegal products often enter the customs territory of Ukraine in international mail and hand luggage, concealed from customs control. In recent years, deliveries in larger volumes have also become more frequent. The e-cigarettes are then sold through online stores and retailers for cash.

The spread of illegal e-liquids in Ukraine is due, on the one hand, to the peculiarities of their market, and, on the other hand, to gaps in legislative and other regulation and insufficient institutional capacity of controlling authorities to prevent illegal trafficking of this type of product.

2.1. *Estimates of the illegal market for e-liquids*

According to a study by the Federation of Employers of Ukraine, in 2021, when the excise taxation of e-liquids in Ukraine began, almost 80% of e-liquids were of illegal origin, and the lion's share of illegal products entered the market through smuggling channels²⁹.

²⁸ Tax regulation of the tobacco market in the conditions of its transformation [V.I. Korotun, T.V. Koshchuk, N.V. Novytska, I.I. Khlebnikova] edited by T.V. Koshchuk Irpin-Khmelnytskyi, 2020. 132 p.

²⁹ Estimation of the volume of legal and illegal markets for e-liquids and excise tax revenues from these products in Ukraine. FEU. 2021. URL: https://fru.ua/images/doc/analitics/2021/e-smoke_2021-web.pdf

It was also estimated that by the end of 2023, the illegal vape market would account for 70% of the total, and then reach 90%³⁰. The main reason for the dramatic shadowing is that *on July 11, 2023, the provisions of the Law of Ukraine "On Amendments to Certain Laws of Ukraine on Protection of Public Health from the Harmful Effects of Tobacco" No. 1978-IX of December 16, 2021, came into force, which prohibit the production, wholesale and retail trade, and import of e-liquids with flavor additives for sale in Ukraine.*

In particular, e-cigarettes, refillable containers and liquids that have a characteristic odor/taste resulting from the introduction of an additive or combination of additives, including fruits, spices, herbs, alcohol, candy, menthol or vanilla, are prohibited from being put into circulation. It is also not allowed to add vitamins, caffeine, taurine, and a number of other additives to e-liquids that may create the impression that the products have benefits for health, etc.

In addition, *the Tobacco Products Directive* requirements for the volume of e-liquid tanks and the nicotine content of liquids were implemented (see Cl. 1.2).

Until mid-2024, leftover flavored e-liquids introduced before July 11, 2023, could be legally sold in Ukraine, but *now mostly illegal vapes can be sold. Online offers indicate that the demand is mainly for liquids with flavoring additives, i.e., prohibited products.*

The goal of adopting the relevant legislative changes was to block access of consumers (primarily young people) to flavored electronic cigarettes. Similar bans are being introduced in a number of countries around the world. But has this goal been achieved? What are the actual consequences of the domestic ban?

To answer these questions, it is important to assess the dynamics of the level of illicit trade in e-liquids, and budget losses associated with the illegal vape market, as well as to find out how often the facts of illegal e-liquid trafficking are recorded.

It should be noted that estimating *the volume of e-liquids consumption* in Ukraine is not an easy task. It has not become part of *Kantar's* regular cigarette market research and is significantly complicated due to the lack of reliable statistical information. We can only roughly estimate the size of the e-liquid market (including both legal and illegal components) based on data on the prevalence of consumption among adults, the population of Ukraine, and the rate of consumption of these products on a daily basis. However, there are a number of caveats regarding the use of each of the above indicators.

According to estimates by *the Kyiv International Institute of Sociology* (hereinafter referred to as KIIS)³¹, in 2023, 3.3% of the population in Ukraine consumed

³⁰ The state budget lost UAH 5 billion due to the ban on flavored e-cigarettes. UNIAN. 28.09.2023. URL: <https://www.unian.ua/economics/finance/derzhavniy-byudzheth-vtrativ-5-milyardiv-griven-cherez-zaboronu-aromatizovanih-elektronnih-sigaret-12408309.html>

³¹ World No Tobacco Day in Ukraine: progress in Ukraine and survey results. Kyiv International Institute of Sociology. URL: <https://www.kiis.com.ua/?lang=ukr&cat=reports&id=1240&page=1>

e-cigarettes (4.2% of men and 2.5% of women). Cigarettes were smoked by 22.2% of adults. At the same time, the methodological notes state that 2,020 adult residents of Ukraine aged 18 and older were interviewed by telephone. A random sample of randomly generated cell phone numbers was used (*random digit dialing*). At the stage of data processing, the results obtained were weighted taking into account the gender and age structure of the resident population of Ukraine according to the State Statistics Service (hereinafter referred to as the State Statistics Service) as of January 1, 2022. The survey sample is representative of the adult population of Ukraine (aged 18 and older).

However, Ella Libanova, an academician at the National Academy of Sciences, notes that today Ukraine has no information on the gender and age structure of the population (even the State Statistics Service does not know it), so the representativeness of any opinion polls should be treated with caution³². In our case, this means the following. Since the beginning of the full-scale invasion, millions of mostly women with children have left for other countries, and men are more likely to use tobacco products (nicotine). Accordingly, the prevalence rates of vape use reported by KIIS may be somewhat underestimated.

There are no estimates of the daily consumption of e-liquids at all in Ukraine. That's why we have to use international data that the average vaper consumes 1 ml of e-liquid per day³³. At the same time, the following cannot be taken into account: other vapers use them occasionally; these products can be used by minors.

According to the *United Nations Population Fund (UNFPA)*, as of January 1, 2023, the total population in Ukraine was 36.7 million people³⁴. At the same time, *UNFPA* does not provide statistics on the adult population. It can only be estimated with certain assumptions that in 2023, the number of people aged 18 and older, some of whom are consumers of e-liquids, amounted to 27,540,000 people.

Given the circumstances described above, *we estimate the volume of consumption (legal and illegal) of e-liquids in Ukraine in 2023 at about 331,720 liters*. The calculations and their results are presented in Table 3.

³² Libanova: The results of polls in Ukraine should be treated with caution. Glavkom. 29.01.2024. URL: <https://glavkom.ua/country/society/do-rezultativ-opituvan-v-ukrajini-potribno-stavitis-oberezhno-libanova-983123.html>

³³ Success rates with nicotine personal vaporizers: A prospective 6-month pilot study of smokers not intending to quit. November 2014. BMC Public Health 14(1):1159. URL: https://www.researchgate.net/publication/268039814_Success_rates_with_nicotine_personal_vaporizers_A_prospective_6-month_pilot_study_of_smokers_not_intending_to_quit

³⁴ Official cite of United Nations Population Fund. URL: <https://www.unfpa.org/data/world-population/UA>

Table 3

Estimates of the total consumption of e-liquids in Ukraine in 2023.

Indicators and/or their calculation	Indicator value
Population aged 18 and older, thousand people	27540
Prevalence of e-liquids use, %	3.3
Number of e-liquids consumers, thousand people (27540*0.033)	908.82
Daily consumption rate of e-liquids, ml	1
Annual volume of daily consumption of e-liquids by one person, liters (0.001*365)	0.365
Total consumption of e-liquids per year, thousand liters (908.82*0.365)	331.72

Source: compiled by the authors based on KIIS and UNFPA data.

Next, to estimate the size of the illegal e-liquid market, it is necessary to compare the total volume of their consumption with the size of the legal market for these products. There is also no data on *the size of* the legal market *for e-liquids* in Ukraine. Conclusions about their legal consumption can be drawn on the basis of information from the State Tax Service of Ukraine (hereinafter referred to as the STS) on the volume of sales of excise tax stamps. However, the calculations are complicated by the fact that there is no standard capacity for the vape tank to which the excise tax stamp is attached. Having processed a data set on the most popular offers of online stores, we assume that *the average volume of a container of imported e-liquid, on which one excise tax stamp is attached, is 6 ml, and for domestic e-liquid – 10 ml.*

Therefore, based on the data on the number of excise tax stamps sold for domestically produced and imported e-liquids, we conclude that *the size of the legal e-liquid market in 2023 can be roughly estimated at the level of 43,020 liters* (Table 4).

Table 4

Estimates of consumption of legal e-liquids in Ukraine in 2023.

Indicators and/or their calculation	Indicator value
Number of excise stamps sold for domestic e-liquids, pcs.	127247
Number of excise stamps sold for imported e-liquids, pcs.	6958126
Volume of the legal market of domestic e-liquids, thousand liters (127247*0.01:1000)	1.27
Volume of the legal market of imported e-liquids, thousand liters (6958126*0.006:1000)	41.75
Total volume of the legal e-liquids market, thousand liters (1.27 + 41.75)	43.02

Source: compiled by the authors based on the data of the State Tax Service received upon official request

The share of the illegal market of e-liquids in Ukraine in 2023 is calculated as follows: $100\% - (43.02:331.72)*100\% = 87\%$. That is, the level of illicit trade in e-liquids *averaged 87%* over the year.

At the same time, it is important to find out what the share of the illegal e-liquid market was *before and after the ban* came into force (in the first and second halves of 2023). For this purpose, we assume that the total consumption of vapes was uniform throughout the year (165,860 liters of e-liquids were consumed in each half of the year). Although, according to KIIS estimates, as of December 2023 (six months within the ban), the prevalence of e-cigarettes has even increased to 3.5%³⁵. Consumption of legal liquids for e-cigarettes will be calculated based on data on sales of excise tax stamps (Table 5).

Table 5

**Calculations of consumption of legal e-liquids in Ukraine
in 2023 (first and second half of the year)***

Indicators and/or their calculation	Indicator value	
	First half of the year	Second half of the year
Number of excise stamps sold for domestic e-liquids, million pcs.	0.06	0.07
Number of excise stamps sold for imported e-liquids, million pcs.	6.70	0.25
Volume of the legal market of domestic e-liquids, mln liters	0.0006	0.0007
Volume of the legal market for imported e-liquids, mln liters	0.00402	0.0015
Total volume of the legal e-liquids market, thousand liters	40.8	2.2

Source: compiled by the authors based on the data of the State Tax Service received upon official request

* The calculation assumptions do not take into account the fact that in the second half of the year, legal e-liquids were sold, excise tax stamps for which were sold before July 8, 2023.

Thus, *while 40,800 liters of e-liquids were legally sold in the first half of 2023, only 2,200 liters* were sold in the second half. Accordingly:

The share of the illegal market of e-liquids for e-cigarettes in the first half of 2023 was 76% ($100\% - (40.8:165.86)*100\% = 75.50\%$);

The size of the illegal e-liquids market in the second half of 2023 increased to 99% ($100\% - (2.2:165.86)*100\% = 98.67\%$).

That is, **the vape market has become almost completely illegal!** It is the complete opposite of the domestic HTP market, which, according to our estimates, currently offers only legal products that have paid all taxes (excise tax, VAT, and retail excise)³⁶.

³⁵ Use of tobacco and nicotine products and attitudes toward tobacco control measures: December 2023. KIIS. URL: <https://center-life.org/wp-content/uploads/2024/03/Vzhyvannia-tiutiunovykh-ta-nikotynovykh-vyrobiv-ta-stavlen-ia-do-antytiutiunovykh-zakhodiv-hruden-2023.pdf>

³⁶ Excise policy and the illicit trade in tobacco products: in search of balanced solutions. T. Koshchuk, M. Pasichnyi / edited by T. Koshchuk, Growford Institute, K: 2024. URL: <https://www.growford.org.ua/research/aktyzna-polityka-i-nelegalna-torgivlya-tyutyunovymy-vyrobamy-u-poshu-kah-zbalansovanyh-rishen/>

The spread of illegal vapes in Ukraine is also confirmed by information from law enforcement agencies. In particular, one of the press releases of the Economic Security Bureau of Ukraine (hereinafter - ESB), dated May 2024, mentioned not only the nearly 14.4 million packs of cigarettes seized by law enforcement over the past six months, but also the *frequent cases of submitting illegal e-liquids for examination*³⁷.

In May 2024, searches began at the five largest tobacco manufacturers with confirmed information about their illegal activities. The results of the searches were made public by Viktor Lysenko, Head of the ESB's Crime Detectives Unit for the Protection of the Economy in the field of circulation of excisable goods. Among other things, law enforcement officers seized *more than 3,000 e-cigarettes with pasted anew over production dates*³⁸.

According to the State Customs Service of Ukraine (hereinafter referred to as the "SCS"), which was announced at the conference "How to De-shadow Retail Trade and Minimize Smuggling in Ukraine" on April 26, 2024, *this year (at that time), empty e-cigarette cases for refilling liquids were imported into Ukraine 12 times more than in the same period in 2023*. Thus, the popularity of vapes continues to grow, but they are sold illegally.

In July 2024, the *illegal production of e-cigarettes in Kyiv region was stopped*. The ESB seized large volumes of e-liquid, more than 15,000 disposable e-cigarette devices, almost 15,000 liters of chemical raw materials, and equipment and accessories for production. In addition, more than UAH 6 million in equivalent and 6 vehicles were seized. *The estimated value of the confiscated finished goods was almost UAH 365 million*³⁹.

Today, stores *often sell empty e-cigarette devices (not banned, not subject to excise tax), flavors (food flavors that are not subject to excise tax), and nicotine (with an excise stamp) separately*. According to the State Tax Service, in May 2024, 251,000 excise tax stamps were sold for imported e-liquids, compared to almost "zero" sales in the previous 3 months. These could have been stamps for nicotine, which was legally supplied to Ukraine in the summer. Thus, the consumers can make a flavored vape suitable for consumption on their own. Moreover, they can prepare any mixture (including dangerous ones) they like. ***These sales are not prohibited by law***, although finished vapes can be classified as prohibited illegal products.

³⁷ Counterfeit cigarettes: dubious quality and unpaid taxes. ESB. 21.05.2024. URL: <https://esbu.gov.ua/news/kontra-faktni-syharety-sumnivna-iakist-ta-nesplacheni-podatky>

³⁸ After large-scale searches by the ESB at tobacco factories, one of the manufacturers lost its license. Business censor. 16.07.2024. URL: <https://biz.censor.net/news/3499970>

³⁹ The ESB has stopped the underground production of e-liquids in Kyiv region: UAH 365 million worth of products were seized. URL: <https://esbu.gov.ua/news/beb-na-kyivshchyni-prypynylo-pidpilne-vyrobnystvo-ridyn-dlia-kurinnia-vylucheno-produktsiiu-vartistiu-365-mln-hrn>

Telegram channels in Ukraine are full of offers of disposable e-cigarettes, including the *Elf Bar* mentioned in Cl. 1.2, which has not yet been eliminated even in the United States.

Let's pay attention to one more point. From January 1, 2023, *the excise tax rate on e-liquids for e-cigarettes increased from UAH 3,000 to UAH 10,000/1 liter* (EUR 0.22/1 ml, which is higher than the rate in many EU countries; Table 1 of Chapter 1). Although this created price advantages for illegal operators, it did not completely destroy the legal vape market.

According to the State Tax Service, in the first quarter of 2022, when the Law of Ukraine "On Amendments to the Tax Code of Ukraine and Certain Other Legislative Acts of Ukraine on the Introduction of Differentiated Rent for Natural Gas Production" No. 2139 of March 15, 2022, was adopted (which regulates the said excise tax increase), 22.14 million excise tax stamps for e-liquids were ordered. Instead, in the first quarter of 2023, orders for these excise tax stamps decreased to 3.41 million pcs. At the same time, the consumption of vapes has not decreased (on the contrary, KIIS recorded a slight increase in the prevalence of their use). Thus, in the context of limited control over the circulation of e-liquids, there has been a partial growth of their illegal market.

What happened in the year since the flavored vaping ban was in effect?

Ukraine has lost the ability to control the development of their market through taxation, product standardization, etc. In particular, while legal operators comply with the requirements for the capacity of vape tanks and the composition of their liquids, illegal players do not care if their products have an increased negative impact on human health. For example, if the market increases demand for e-liquids with a nicotine concentration of more than 20 mg/ml (an EU restriction that is currently in effect in Ukraine), they will become widespread.

Figuratively speaking, we have "unleashed a dangerous genie" that the United States has not yet dealt with; And Australia is suffering the most from it, as it has gone ahead with a complete ban on vapes. However, while Australia is strengthening control measures in this area, Ukraine does not pay enough attention to counteracting the illicit trade in e-liquids. Of course, it would be better if we started fighting the illegal e-liquid market from the moment the ban came into effect. Over the year, the problem worsened. At the same time, it will only get worse. Therefore, as the saying goes, "it's never too late to start doing good deeds."

In the context of a full-scale war, Ukraine has almost completely lost tax revenues from vapes. While in the first half of 2023, 6.76 million excise tax stamps for e-liquids were sold, in the second half of 2023, 0.32 million were sold, and in the first half of 2024, only 0.39 million were sold (0.27 million for imported liquids and 0.12 million for domestic ones).

The dynamics of excise tax revenues from e-liquids (at the rate of UAH 10,000/1 liter) looks disappointing:

The first half of 2023 – 40,800 liters (UAH 408 million of excise tax);

The second half of 2023 – 2,200 liters (UAH 22 million of excise tax);

The first half of 2024 – 1,700 liters (UAH 17 million of excise tax).

Accordingly, *the excise tax losses only due to the ban on e-liquids with flavoring additives and the almost complete shadowing of their market for the year of the ban amounted to UAH 774 million.*

If we calculate the excise tax losses due to the existence of the entire illegal e-liquids market (with a capacity of more than 300 thousand liters per year and a growing trend), we get a figure of UAH 3 to 4 billion.

It is even more difficult to estimate the losses of VAT and retail excise, for which the basis for calculation will be the cost of illegal vaping products, not the volume of e-liquid. After all, such taxes are charged on the cost of open-type vape liquids and the cost of closed-type e-cigarettes. However, the available data do not allow us to separate these components, and it is impossible to make an assessment.

Instead, you can calculate how many 40 Foot Shipping Containers can hold the entire annual volume of illegal e-liquids consumed in the domestic market. 300,000 liters is 300 cubic meters. So, 4–5 containers are enough to meet the demand for a year! This is a vivid illustration of the ease of transportation of illegal e-liquids (Fig. 3).

The market of electronic cigarettes in Ukraine

- **331,720 liters of e-liquids** were consumed in 2023.



The share of the illegal market for e-liquids is **99%**

- **3.5% of adults** are regular users of e-cigarettes



Excise tax losses from illicit trade in e-liquids amount to **UAH 3-4 billion**

- **July 2023 - ban on flavored vapes,** that are in the greatest demand on the market



4-5 40 Foot Containers are enough to meet the demand for illegal e-liquids for a year

Fig. 3. Characteristics of the e-cigarette market in Ukraine

The excise tax losses from illegal e-liquids that we calculated were not previously taken into account. They should be added to the budget losses from the consumption of illegal cigarettes and other excisable products. After all, instead of illegal flavored e-cigarettes, if their circulation were effectively controlled, legal e-cigarettes, conventional cigarettes, or HTPs could be consumed. Only a small proportion of people who use tobacco products and their alternatives are able to quit.

Today, in Ukraine, as in the rest of the world, the tobacco market for conventional tobacco products is gradually shrinking, and newer nicotine products are becoming increasingly popular. However, *while the transition to vapes in the domestic reality means a concomitant loss of tax revenues, the transition to fully legal heat-not-burn products ensures that taxes are paid on each pack purchased*. In this context, the use of HTPs has advantages over smoking conventional cigarettes, the market for which remains 18% illegal⁴⁰.

The state cannot influence the price of illegal e-cigarettes, it is determined by the ratio of supply and demand in the market. At the same time, illegal players are interested in their products having price advantages over their alternatives. Therefore, the conclusions are obvious:

- 1) *It is better to prevent the illegal vape market from scaling up further, so that it does not become as strong as the cigarette market is today;*
- 2) *It is important to pay due attention to the development of measures to counteract the illicit trade in e-liquids (more on this in Chapter 3).*

In particular, among the preventive measures, it is important to adopt the draft Law of Ukraine "On Amendments to the Tax Code of Ukraine on Revision of Excise Tax Rates on Tobacco Products", Reg. No. 11090, as a whole, which provides for the gradual differentiation of excise tax rates. If the excise tax on HTPs becomes 20% lower than on CCs by 2028, this will create the preconditions for a corresponding change in prices and protection against undesirable changes in the structure of the market for tobacco products and their alternatives.

2.2. Changes during a full-scale war

It is worth noting that in 2021–2023, the level of illicit trade in e-liquids was influenced not only by the ban on flavored vapes and the increase in the excise tax rate on such products. With the outbreak of a full-scale war, the vaping industry has faced many challenges.

First, in the first months of active hostilities, there were difficulties with ordering and delivering excise tax stamps, as well as interruptions in the supply of legal e-liquids (due to internal logistical problems and queues of imported goods at

⁴⁰ Monitoring of illicit trade in tobacco products in Ukraine, 2024. Wave 2. Kantar. URL: <https://www.kantar.com/ua/inspiration/ait/monitoring-nelehalnoi-torgivli-tutunovih-vyrobiv-kviten-2024>

the border). This intensified the expansion of the illegal segment of the market for such products; Further recovery of the legal market might not have taken place given the increase in excise duty.

Second, the war has resulted in significant migration flows within the country and abroad. According to the UN⁴¹, as of January 27, 2024, 5.93 million Ukrainian refugees were registered in the EU, and another 403,600 refugees were registered in other countries. According to the Ministry of Social Policy and Iryna Vereshchuk, Deputy Prime Minister and Minister for Reintegration of the Temporarily Occupied Territories of Ukraine, about 4.9 million Ukrainian citizens were internally displaced at the end of 2023; At its peak in 2022, this figure exceeded 6.5 million people. According to the International Organization for Migration, the number of internally displaced persons as of September 25, 2023, was lower – 3.7 million people⁴².

Despite the fact that the choice of e-cigarettes is more common among men (as noted in Cl. 2.1, in 2023, 4.2% of men and 2.5% of women used vapes), and mostly women with children moved abroad, such migration flows have affected the overall volume of vape use. At the same time, the stresses of the war most likely provoked an increase in the popularity of such products.

Third, a significant territory of Ukraine with its population remains temporarily occupied, and the occupiers are forcibly deporting Ukrainians to Russia. The sharp decline in population is leading to a decline in demand for all types of goods, including e-cigarettes.

Fourth, the war has led to a decline in the purchasing power of most of Ukraine's population, which has resulted in a change in consumer preferences and the spread of illicit trade in tobacco products and their alternatives. According to Danylo Hetmantsev, Chairman of the Parliamentary Committee on Finance, Taxation and Customs Policy, the loss of labor income since the start of the full-scale war has been significant, with real wages down 9.3⁴³% in the first nine months of 2023 compared to the same period in 2021.

The decline in the purchasing power of the population provokes a shift to illegal products. Moreover, while the older generation is more likely to choose CCs among the available illegal offers, young people often choose vapes.

This proves once again that it is necessary to start an active fight against the illegal market of e-cigarette liquids. As soon as possible!

⁴¹ Official UN data. URL: <https://data.unhcr.org/en/situations/ukraine>. Date of access: January 25, 2024.

⁴² Report on internal displacement in Ukraine. International Organization for Migration. 2023. URL: https://dtm.iom.int/sites/g/files/tmzbd11461/files/reports/IOM_Gen%20Pop%20Report_R14_Displacement_ENG-UKR.pdf

⁴³ The official Telegram channel of Danylo Hetmantsev. URL: <https://t.me/getmantsevdanil/5985> (Date of access: 27.01.2024)

3. Practice of domestic abuse in relation to illegal vaping products

The rapid increase in the illegal production and trafficking of e-liquids in Ukraine, both as a result of additional restrictions on their production and sale and due to imperfect government policy (this is also true in many foreign countries), indicates the systemic nature of the shadow market problem. A balanced modification of the tools for controlling the production and circulation of excisable goods, taking into account the indicators of the illegal market for vaping products, is relevant and appropriate. Primarily, it is important to identify the forms of illegal e-liquid trafficking in order to develop effective measures to counteract the relevant offenses.

3.1. Analysis of the methods of illegal trafficking

The domestic market for vaping products is less structured than the market for conventional cigarettes and is represented by numerous products. Ukraine has not actively developed its own legal production of e-cigarettes. As shown in Table 4 of CI 2.1, in 2023, only about 2% of the total volume of excise tax stamps sold for e-liquids were for liquids produced in Ukraine. These goods were almost entirely imported to Ukraine.

According to the State Tax Service and the Pro-consulting agency, imports to Ukraine were mainly in the form of e-cigarettes of various modifications (disposable e-cigarettes, disposable and reusable pod devices), replaceable e-cigarette cartridges and cartomizers (special tanks filled with e-liquids that are inserted into the vaping system device). In 2023 the largest share in the structure of legal import of vaping products was *electronic cigarettes* – 93.3%, followed by: *pod devices* – 5.9%, *cartridges* – 0.7%, *liquids for electronic cigarettes* – 0.1%.

Electronic devices containing e-liquids are mainly sourced from China and Germany. It should be noted that the share of imported products from China has been steadily increasing at the expense of declining imports from European countries. The main reason for this was the price offer. In 2022, e-liquids for e-cigarettes were imported exclusively from Hong Kong, and in 2023, the largest share of e-liquids was supplied to the domestic market from the UK – 72% and Croatia – 27%⁴⁴.

The lack of effective mechanisms for controlling the circulation of vaping products leads to the fact that illegal goods often enter the customs territory of the state in *international mail and hand luggage*. The smuggling shadow e-cigarette scheme typically actively uses *distribution channels for wholesale and retail con-*

⁴⁴ Market analysis of snus, nicotine pouches and e-liquids in Ukraine. 2024. K.: Pro-consulting. 26 p.

signments throughout Ukraine through social media and postal operators. Law enforcement agencies and the ESB have recorded numerous cases of such shadow activities.

Ukraine's market is saturated with *disposable e-cigarette devices that are counterfeit or overcharged.* Globally, disposable vapes (which are mostly flavored) are the source of the most complaints about health hazards, and in developed countries, there are also constructive inquiries about the compliance of these products with environmental standards. Raids by the authorized institutions in the field of state control over excisable goods reveal large-scale schemes for the illegal production and sale of e-cigarettes of well-known brands, and cartridges and capsules for electronic devices. Clandestine production facilities equipped with specialized equipment perform unlicensed production of e-cigarettes and e-liquids. As a rule, materials and raw materials for their production are imported into Ukraine illegally⁴⁵.

Further, the products may be labeled with counterfeit excise tax stamps or not labeled at all (under the ban) and sold on the domestic market through a network of specialized stores. *The sale of e-cigarettes with counterfeit excise stamps or without labeling is a typical scheme of tax evasion (abuse of prohibited products).* This is how counterfeit products, fakes of well-known brands, and devices illegally imported into the country are sold. Reports and news items on the ESB official website over the past year indicate that illegal e-cigarette products without Ukrainian excise stamps have been continuously seized in almost all regions of the country⁴⁶.

In general, Ukraine has an insufficient level of institutional support for state control over the vape market. Domestic taxation of e-liquids started later than in most EU countries and many developed countries – in 2021. During this time, the number of consumers of these products has increased significantly, and the e-cigarette segment has demonstrated the highest growth rates among other components of the tobacco products and alternatives market. According to the KIIS survey, in 2023, 24.5% of Ukrainians were daily smokers (nicotine users), and 14% of them were vaping⁴⁷ products users.

The revenue dynamics of the e-cigarette market over the past ten years is shown in Fig. 4. It can be seen that the annual average revenue growth rate in this market in 2014-2023 was 18.4%.

⁴⁵ The ESB exposes a scheme for the production and sale of e-cigarettes in Lviv region: property worth UAH 21 million is seized. URL: <https://esbu.gov.ua/news/beb-vykryv-skhemu-vyrobnystva-i-zbutu-elektronnykh-syhalet-na-lvivshchyni-vylucheno-maina-na-21-mln-hrn> (date of access: 29.07.2024).

⁴⁶ Official website of the Economic Security Bureau of Ukraine. URL: <https://esbu.gov.ua/timeline?&type=posts> (date of access: 10.07.2024).

⁴⁷ KIIS (2024) Results of the survey on the use of tobacco and nicotine products in Ukraine. URL: <https://www.kiis.com.ua/?lang=ukr&cat=reports&id=1386&page=1> (date of access: July 15, 2024).

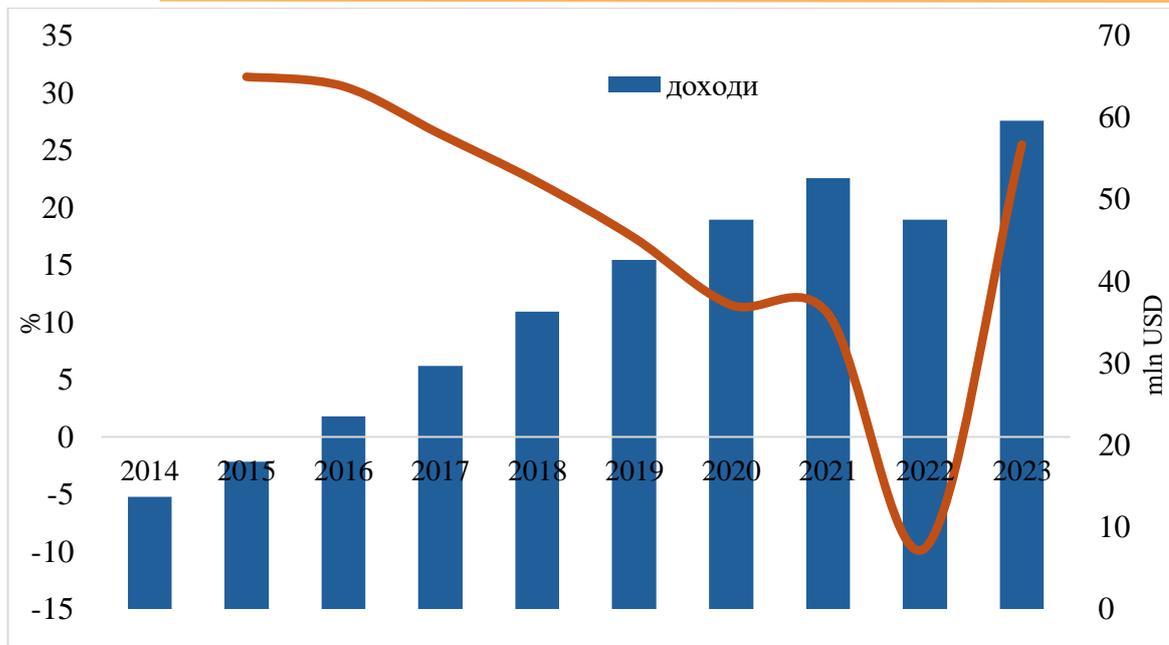


Fig. 4. Revenue dynamics of the e-cigarette market in Ukraine in 2014-2023

Source: compiled by the authors based on Statista data. URL: <https://www.statista.com/outlook/cmo/tobacco-products/e-cigarettes/ukraine>

At the same time, it should be noted that by 2022, the industry's revenue growth rate was gradually slowing down, despite steady growth in dollar terms. In 2022, revenues declined slightly, primarily due to the depreciation of the national currency and the emigration of Ukrainians abroad as a result of the full-scale invasion. In 2023, e-cigarette market revenues were at their highest levels. It is forecast that in 2024, the revenue growth rate in the vaping industry will slow to 4.0%. *Given the growing market and rather high demand for e-cigarette consumption, the benefits for shadowy businesses that illegally manufacture and sell excisable products in Ukraine are increasing.*

A significant period of time without proper regulation of the e-cigarette market and taxation has affected the behavior of its players and the emergence of a significant shadow vape segment. The Law of Ukraine "On Amendments to Certain Laws of Ukraine on Protection of Public Health from the Harmful Effects of Tobacco" No. 1978-IX of December 16, 2021, established restrictions and prohibitions on the production and circulation, as well as the promotion of tobacco products, including e-cigarettes. These legislative changes came into force on July 11, 2023. This includes *a ban on the production (except for export purposes), wholesale and retail trade, and import of certain types of e-cigarettes. In particular, flavored e-cigarettes and other products that contained additives (e.g., vitamins) that could mislead consumers about the effects of using these products.* It also sets clear requirements for the composition of liquids used in e-cigarettes.

It is worth noting that allowing the production of e-cigarettes for export poses a threat of using a scheme of abuse based on pseudo-exports.

The law provided a transitional period until July 11, 2024, for the sale of the remaining imported products and manufactured products that remained in warehouses. *Flavored e-cigarettes with various additives are very popular among vapes around the world. And even in the case of a ban on their production and sale, it is necessary to ensure an effective design of the system of state control over the implementation of legislation.* This is emphasized in many countries. For example, the UK expert community also notes that bans on the vaping market could potentially lead to "hard-to-control illegal sales and a significant expansion of the illegal e-cigarette market"⁴⁸.

As described in Cl. 2.1, Ukraine already has a scheme where *empty e-cigarette devices, food flavors, and nicotine are sold separately.*

It is a common practice to ***set up and support illegal e-liquid production.*** Full cycles of mass production of such products are organized, using specialized industrial equipment and machinery. Even after the ban on the use of flavors and additives in e-liquids, the main common components used for these liquids are: nicotine, propylene glycol, glycerin, and flavors. The latter component is still in high demand among consumers of this type of product, despite the legal ban. E-liquids are then packaged in plastic PET bottles, which are sold through various channels. In particular, through *small specialized kiosks, shops, and online, including Telegram channels and Instagram, which are an important sales channel, especially among the younger generation.*

The scale of the problem is evidenced by the analytics and data of the ESB, which is the responsible institution for counteracting illicit trade in excisable goods. In Kyiv region alone, the Bureau seized vaping products from illicit trafficking at one clandestine production facility worth about UAH 365 million⁴⁹.

On June 30, 2023, in the city of Lutsk, officers of the State Border Guard Service of Ukraine found lines for the production, bottling and labeling of nicotine-containing e-liquids, as well as a chain of stores selling these e-liquids, both with and without the appropriate excise tax stamps.

Schemes of selling illegal vaping products can be illustrated on Fig. 5.

⁴⁸ Ban on single-use vapes in UK may 'flood market with illegal products'. The Guardian. URL: <https://www.theguardian.com/society/2023/sep/12/ban-on-single-use-vapes-in-uk-may-flood-market-with-products>

⁴⁹ The ESB has stopped the underground production of e-liquids in Kyiv region: UAH 365 million worth of products were seized. URL: <https://esbu.gov.ua/news/beb-na-kyivshchyni-prypynylo-pidpilne-vyrobnystvo-ridyn-dlia-kurinnia-vylucheno-produktsiiu-vartistiu-365-mln-hrn> (date of access: July 29, 2024).

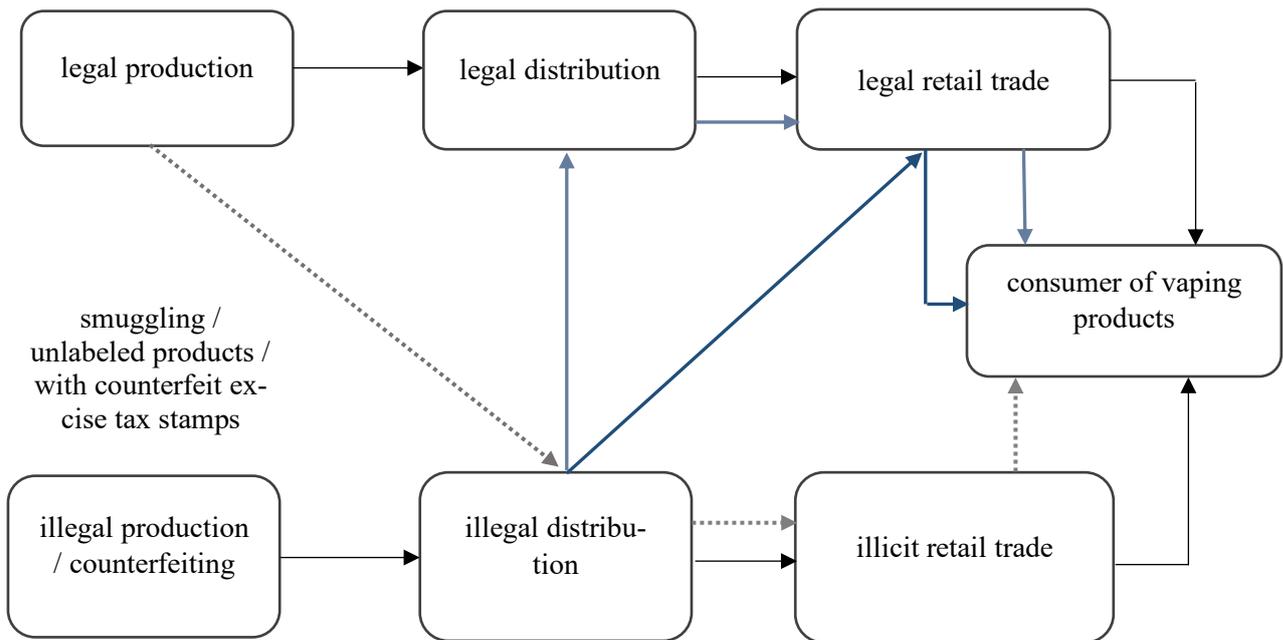


Fig. 5. Schemes for selling illegal vaping products

Source: developed by the authors

The simplest forms of vaping product circulation (unless prohibited) are the movement from legal production to legal distribution and to legal retail outlets where the products are purchased by consumers. Then the budget receives all the taxes stipulated by law. At the same time, even legally produced products (if licensed by the State Tax Service) may be smuggled, not marked with excise tax stamps or have counterfeit stamps attached to them. At each stage of the chain from vape production to the end user, there are threats and opportunities for illegal products to be sold. But if a product is banned, its circulation is completely illegal. It is important to monitor the largest channels of supply of raw materials for components for illegal production and to limit access to the domestic market for smuggled products.

3.2. Measures to counteract the illicit trade in e-liquids

De-shadowing of excisable goods markets is one of the priorities of the state tax policy. At a time of acute fiscal deficit and the need to finance the security and defense sector, every additional hryvnia paid to the budget is, without exaggeration, important. Today, the measures presented by the authorities to strengthen the fiscal potential of taxes are being actively discussed. The implementation of measures to counteract the illicit trade in e-liquids is timely and relevant. E-liquids can be seen as an alternative to consuming unbanned tobacco products.

The adoption of the Law of Ukraine "On State Regulation of Production and Turnover of Ethyl Alcohol, Alcohol Distillates, Bioethanol, Alcoholic Beverages,

Tobacco Products, Tobacco Raw Materials, Liquids Used in Electronic Cigarettes and Fuel" No. 3817-IX on June 18, 2024, by the Parliament deserves a positive assessment. This law introduces a number of innovations to improve control over the circulation of tobacco products and e-liquids, including procedures for ensuring their traceability and the use of electronic excise stamps.

It is regulated that a business entity, when carrying out retail trade in tobacco products in a non-cash form, is obliged to use a cash register (hereinafter – the "CR") and/or a software CR with the mandatory issuance of a fiscal cash receipt in paper and/or electronic form, which indicates the form of payment: non-cash.

The structure and procedure for administering state registers in the field of state regulation of production and circulation of tobacco products, tobacco raw materials and liquids used in e-cigarettes have been improved. In particular, open electronic registers of licenses, equipment for the production of excisable goods, etc. will be created.

The law simplifies the licensing and installation of round-the-clock video surveillance systems at enterprises that store e-liquids. The State Tax Service will be able to block websites that illegally sell excisable goods. At the same time, it is important to choose effective technical solutions and other mechanisms for the practical implementation of the provision on video surveillance, extending it to the production of e-liquids and e-cigarettes, as well as to work on identifying the persons who created these websites, blocking their bank cards and accounts and bringing them to justice.

However, the fight will not end there.

Counteracting smuggling of vaping products is one of the most important elements of the fight against their illegal trafficking. In today's environment, the issue of customs reform is of particular importance, as it is a prerequisite for Ukraine to receive external credit assistance from foreign countries and international financial organizations. Yaroslav Zheleznyak, Deputy Chairman of the Parliamentary Committee on Finance, Tax and Customs Policy, notes that Ukraine will receive the second installment of financial aid from the United States only if it reboots its customs⁵⁰.

The National Revenue Strategy until 2030 also pays important attention to customs reform. In particular, the following issues were discussed: strengthening measures to counteract smuggling and customs violations; measures necessary to establish criminal liability for smuggling of excisable goods and false declaration of goods⁵¹.

⁵⁰ The official Telegram channel of Yaroslav Zhelezniak. URL: <https://t.me/yzheleznyak/9407> (date of access: August 01, 2024).

⁵¹ National Revenue Strategy until 2030. 2023. URL: https://mof.gov.ua/storage/files/National%20Revenue%20Strategy_2030_.pdf

Pursuant to the provisions of Law of Ukraine No. 3513-IX dated December 9, 2023, criminal liability for commodity smuggling with the establishment of value restrictions was introduced on July 1, 2024⁵². Criminal liability for smuggling of excisable goods is incurred if the total value of the smuggled goods (except for electricity) is seven hundred and fifty times or more than the tax-free minimum income (in 2024 – UAH 1,135,500). In this case, the offenders may face a fine of UAH 340,000 or imprisonment for a term of three to six years. If the smuggling of excisable goods reaches a large amount, in excess of one thousand five hundred tax-free minimum incomes (in 2024 - UAH 2,271,000), sanctions are provided in the form of fines from UAH 1,275,000 to 12 years in prison with confiscation of property.

It is worth noting that illegal e-liquids can be sold at a price equivalent to UAH 8.8/1 ml. Based on this price, criminal liability will be incurred if 129 liters of such liquid are found. Instead, the price of legal e-liquids, according to the existing proposals, may be the equivalent of UAH 30/1 ml. That is, criminal liability will arise if 37.85 liters of liquid are seized from illegal circulation.

At the same time, it is determined that liability for moving contraband items across the customs border of Ukraine concealed from customs control is possible only in the presence of an intentional form of guilt, which should also exclude abuse by law enforcement agencies. Due to the introduction of criminal liability for smuggling of excisable goods, its volumes will decrease, smuggling will be imported into Ukraine in small batches, which will increase the risk of detection.

Employees of the State Border Guard Service of Ukraine regularly detect undeclared e-cigarettes during joint inspections of vehicles at checkpoints with the State Migration Service. Having systematized the information, it can be concluded that most of the identified and seized vaping products are imported into Ukraine by cars and minibuses⁵³. One of the peculiarities of illegal transportation of e-cigarettes across the border is that smugglers choose the green corridor, a simplified customs control channel designed to move goods in volumes that are not subject to customs duties and written declaration, and are not subject to statutory prohibitions and/or restrictions on importation into the customs territory of Ukraine.

At the same time, there were also cases of smuggling on a large scale. In particular, in October 2023, the State Migration Service officers found more than 64 thousand undeclared disposable e-cigarettes (including *Elf Bar*) that were attempted to be transported across the border as cosmetics. This happened at the Starokozache-Tudora checkpoint (border with Moldova). The total value of the seized illegal products amounted to about UAH 25 million.

⁵² Law of Ukraine "On Amendments to the Criminal and Criminal Procedure Codes of Ukraine on the Criminalization of Smuggling of Goods" No. 3513-IX of December 09, 2023, URL: <https://zakon.rada.gov.ua/laws/show/3513-20#Text> (date of access: August 02, 2024).

⁵³ Official website of the State Border Guard Service of Ukraine. URL: <https://dpsu.gov.ua/uk/news>

The experts of the Institute for the Future note that it is the strengthening of control at the state border through the use of modern technical means that increases the possibility of detection by the authorized bodies of large automobile consignments of illegal excisable goods.⁵⁴ Therefore, the technical re-equipment of checkpoints at the state border to optimize their operation with scanners and intelligent video control systems is an important element in counteracting smuggling of vaping products.

The experience of developed countries, such as Australia, the United Kingdom, the United States, and Poland, where a large share of illegal e-cigarettes and their components are smuggled, shows that to improve the efficiency of border and customs authorities, funding for these institutions should be increased. Establishing a performance indicator for the above-mentioned bodies in the form of the volume of seized excisable goods that are smuggled is an element of counteracting the expansion of smuggling.

Since illegal vapes, cartridges and e-liquids are delivered to consumers through the postal service, it is important to minimize the flow of illegal e-cigarette trafficking through this channel. It is likely that the change in the government's proposed rules for taxation of international mail to reduce the value limit for duty-free import of parcels from EUR 150 to EUR 45 will partially contribute to this.

In the United States, the problem of illicit trafficking in e-cigarettes and their structural components has gained considerable publicity. Authorized persons focus their efforts on preventing the possibility of illegal distribution and illegal sale of vaping products. In particular, a working group was set up in June 2024 to address this issue. It is noteworthy that this group includes representatives of the *US Postal Inspection Service*⁵⁵.

In Ukraine, the ESB representatives have repeatedly recorded facts of wholesale supply of tobacco products and raw materials for their manufacture by mail. Strengthening control over the movement of excisable goods by mail, especially in large quantities, is a reasonable step to limit the possibility of using this channel to deliver illegal excisable goods to the end consumer. Implementation of measures to improve the efficiency of control over the circulation of raw materials and to stop the illicit trafficking of tobacco products through postal and courier services is one of the priorities in countering the illegal market⁵⁶.

⁵⁴ Ukrainian Institute for the Future. The illegal tobacco market in the context of a full-scale war: challenges and threats. 2023. 40 p. URL: https://drive.google.com/file/d/1Ftoq2rIALzVPrZ84LTeJbJu58_mbXQ2t/view

⁵⁵ FDA, Justice Department crack down on sale of illegal e-cigarettes by forming new task force URL: <https://edition.cnn.com/2024/06/10/health/illegal-e-cigarettes-new-task-force/index.html>

⁵⁶ Ukrainian Institute for the Future. The illegal tobacco market in the context of a full-scale war: challenges and threats. 2023. 40 p. URL: https://drive.google.com/file/d/1Ftoq2rIALzVPrZ84LTeJbJu58_mbXQ2t/view

Based on the analytical estimates presented in the Second Chapter of this study and the above data of the Third Chapter, we can see that illegal and smuggled vapes are produced on a large scale in Ukraine. Primarily, we are talking about e-liquids. The presence of extensive distribution networks, illegal retail outlets and insufficient control over the sale of excisable goods via the Internet and social applications create the conditions necessary for criminals to sell illegal products throughout the country.

Having studied the practice of foreign countries, including the United States, Australia, and the EU, it can be argued that the *priority of state policy in the field of counteracting the illegal vape market is to identify the largest oases (points, entities) of illegal production and supply of these products*. It is logical to identify and study the supply channels of illegal products from retail outlets to distribution entities and subsequently to illegal producers (this is the reverse movement shown in Fig. 5, Cl. 3.1). Shutting down illegal production facilities and seizing equipment and raw materials used to make counterfeit products will help reduce the size of the shadow e-liquid market. In addition, it is important to trace the channels of supply of raw materials to illegal production facilities, to find out their origin in order to prevent their suppliers from operating in the domestic market.

To do this, it is necessary *to improve the tools for controlling raw materials used for the production of e-liquids, as well as empty e-cigarette devices that are imported into Ukraine and can later be sold in illegal schemes*. When seizing equipment used for the illegal production of vaping products by ESB representatives, it is relevant and appropriate to conduct examinations to establish the origin of this equipment and its supply channels.

In the domestic context, special attention should be paid *to strengthening control over the circulation of such an ingredient of e-liquids as nicotine*.

In Ukraine, similar to many developed countries, including Europe, an ecosystem is being formed to counter the spread of e-cigarettes, which are the most popular among the younger generation. Important steps in its construction include taxation of e-liquids, prohibition of advertising of vaping products, prohibition of flavors, additives, vitamins and other substances, establishment of requirements for the structure of e-liquids, etc. At the same time, despite the fact that the measures taken are beneficial to society, it is necessary to ensure proper conditions for their implementation. Many countries around the world are debating whether to ban the sale of vaping products at gas stations, kiosks, and small shops. It is proposed to leave only officially registered specialized stores and large retail chains. However, the US experience shows that even the issuance of significant fines to retail outlets (including gas stations) for violating the requirements for e-cigarette sales does not significantly improve the situation, and such sales continue.

An important measure to reduce the illicit market of e-liquids is to ***strengthen the coordination of control measures of state fiscal and law enforcement agencies.*** In particular, the ESB, tax and customs services, border guards and police. Empirical experience shows that the systematic coordinated work of these institutions ensures proper effectiveness in countering the illegal production and trafficking of excisable goods. Comprehensive measures by regulatory and law enforcement agencies ensure the effectiveness of the policy of tracking and recording elements of the organized crime chain involved in the illegal production and sale of vaping products. Government authorities, even in developed countries, did not pay enough attention to the problem of loss of budget revenues and damage to public health caused by the illegal e-cigarette market. For a long time, CCs remained in the crosshairs. Even among the expert community, studies of state treasury revenue losses have focused on the cigarette component of the tobacco market.

CONCLUSIONS

1. The growth of the vape market as an alternative to conventional cigarettes prompted the introduction of taxation, and the introduction of excise taxes and a number of bans were the main reasons for the development of the illegal market.

There are three approaches to excise taxation of e-cigarettes in the world. By means of: a) A specific tax rate; b) An ad valorem rate; and c) A combination of these approaches. *The most common global practice of taxing e-liquids is to apply a specific excise tax rate depending on the volume of the liquid.* This practice is used in the EU, the UK, Norway, Albania, Azerbaijan, Kazakhstan, Kyrgyzstan, South Korea, Serbia, Montenegro, and other countries.

Currently, excise taxes on e-liquids have been introduced in *18 EU countries, but they are not harmonized.* The European Commission recognized the right of countries to introduce non-harmonized excise taxes for these products, but refrained from providing recommendations on their taxation until the information gaps are better filled in on: the peculiarities of the spread of e-liquids in the EU market, problems that may arise in the field of tax administration, and the impact of e-cigarette use on human health.

Approaches to the excise tax on e-liquids in the EU differ, with nicotine and non-nicotine liquids being taxed. A number of countries apply differentiated excise rates (depending on the presence of nicotine in the liquid or its concentration). Bulgaria and Romania have imposed excise taxes only on e-liquids with nicotine. These approaches take into account the potential of vapes to overcome nicotine addiction. Croatia has chosen a zero tax rate. However, most member states apply a single excise rate to all e-liquids.

At the same time, in the EU, the excise tax burden on e-liquids is significantly lower than on CCs.

2. High excise tax rates may lead to the formation of an illegal e-liquid market. Given the peculiarities of the tax control system and the physical characteristics of vapes, the functioning of this market has its own peculiarities. On the one hand, *the large number of market operators* increases the risks of illicit trade. On the other hand, *e-liquids (pure nicotine) are much easier to move across customs borders than conventional cigarettes, and customs authorities have limited technical means to control* small shipments made by courier delivery services and to conduct an examination of the composition of liquids.

Ingredients of e-liquids *such as glycerin and flavors* are used by a number of industries (food, medicine, and cosmetics) and are not subject to special regulation. These substances *are readily available to manufacturers of illegal e-cigarettes and*

can also be used by consumers to prepare e-liquids on their own (with any mixture, which is dangerous).

3. *Problems arise when certain types of vapes are banned after they have become popular on the national market.* Their consumption cannot be stopped immediately, which increases the risks of shadowing the relevant market, especially in the context of insufficient institutional capacity of controlling authorities. If such an illegal product is distributed, we still have to talk about the *loss of tax revenues, since banned e-liquids are an alternative to consuming unbanned legal tobacco products.* The worst situation is when both budget revenues are lost and public health goals are not achieved. Therefore, the implementation of prohibitions requires increased attention to the issue of counteracting illicit trade in e-liquids.

4. Trends in the development of the e-cigarette market in the world include *the establishment of clear standards, requirements for product content and quality.* At the same time, illegal vape importers and manufacturers are seeking to saturate the market with cheaper alternatives, bypassing legislation and government oversight that protect consumers of legal products. Even developed countries with moderate shadow economies face challenges in curbing the dominance of illegal e-cigarettes. In the US, EU, UK, and Australia, the market is saturated with smuggling. To support measures to counter the spread of illegal e-cigarettes, the budget allocates additional funds for controlling authorities, primarily the Border Guard Service, to counteract smuggling.

Spot identification of illegal vape outlets does not yield tangible results. *In order to develop effective measures to counteract illicit trade, it is important to combine the efforts of the legislative and executive authorities, law enforcement agencies, and legal vaping manufacturers.*

5. The continued absence of state regulation and taxation of e-liquids in Ukraine has contributed to the shift in demand for them, and the introduction of an excise tax on these products in 2021 has intensified the shadowing of the market. The spread of illegal e-liquids in Ukraine is due, on the one hand, to the peculiarities of their market, and, on the other hand, to gaps in legislative and other regulation and insufficient institutional capacity of controlling authorities to prevent illegal trafficking of this type of product.

Starting from January 1, 2023, Ukraine increased the excise tax rate on e-liquids from UAH 3,000 to UAH 10,000/1 liter (or EUR 0.22/1 ml, which is higher than the rate in many EU countries). This created additional price advantages for illegal market operators.

However, *the entry into force on July 11, 2023, of legislation prohibiting the production, wholesale and retail trade, and import of e-liquids with flavor additives*

for sale in Ukraine was devastating for the domestic legal e-cigarette market. These are the liquids that are in the greatest demand.

*According to our calculations: the share of the illegal e-liquid market in the first half of 2023 was 76%; The **size of the illegal e-liquid market in the second half of 2023 increased to 99%**. The situation has not changed in 2024.*

The spread of illegal vapes in Ukraine is confirmed by survey data on the use of this type of product and information from law enforcement agencies. In particular, there are frequent cases of illegal liquids for e-cigarettes being submitted for examination, and seizures of e-cigarettes with production dates pasted over. In July 2024, a large-scale illegal production of e-cigarettes was shut down. The State Customs Service notes a more than tenfold increase in the import of empty e-cigarette cases into Ukraine compared to 2023.

Ukraine has lost the ability to control the development of the vape market through taxation, product standardization, etc.

Excise tax losses due to the ban on e-liquids with flavoring additives and the almost complete shadowing of their market during the year of the ban amounted to UAH 774 million.

*However, given that the e-liquids market has been developing largely in the shadow segment, the excise tax **losses from the entire illegal market** (with a capacity of more than 300,000 liters per year and a growing trend) amount **to UAH 3 to 4 billion**.*

Just 4-5 forty-foot containers are enough to meet the domestic demand for illegal e-liquids for a year. This product can be easily transported in large volumes and in small batches.

6. The sharp decline in the population of Ukraine since the beginning of the full-scale war has led to a decrease in demand for all types of goods, including e-cigarettes. At the same time, the decline in the purchasing power of the population provokes a shift to illegal products. At the same time, while the older generation is more likely to choose CCs among the available illegal offers, young people often choose vapes.

Today, in Ukraine, as in the rest of the world, the tobacco market for conventional tobacco products is gradually shrinking, and newer nicotine products are becoming increasingly popular. However, *while the transition to vapes in the domestic reality means a concomitant loss of tax revenues, the transition to fully legal heat-not-burn products ensures that taxes are paid on each pack purchased*. In this context, the use of HTPs has advantages over smoking conventional cigarettes, the market for which remains 18% illegal.

The state cannot influence the price of illegal e-cigarettes, it is determined by the ratio of supply and demand in the market. At the same time, illegal players are

interested in their products having price advantages over their alternatives. Therefore: 1) *It is better to prevent further scaling of the illegal vape market;* 2) *It is important to pay due attention to the development of measures to counteract the illicit trade in e-liquids.*

In particular, if the excise tax on HTPs is somewhat lower than on CCs, this will create conditions for appropriate price changes and protect against undesirable changes in the structure of the market for tobacco products and their alternatives.

7. In Ukraine, raids by authorized institutions in the field of state control over excisable goods reveal large-scale schemes for the illegal production and sale of e-cigarettes of well-known brands, cartridges and capsules for electronic devices. *The sale of e-cigarettes with counterfeit excise stamps or without any labeling at all is a typical tax evasion scheme. A common practice of abuse is the establishment and maintenance of illegal production of e-liquids.* Full cycles of mass production of counterfeit products are organized, using specialized industrial equipment and facilities. Even after the ban on the use of flavors and additives in e-liquids, the main common components used for e-liquids are: nicotine, propylene glycol, glycerin, and flavors. The latter ingredient is still in high demand among consumers of this type of product, despite the legal ban.

In particular, to circumvent the ban, stores *sell empty e-cigarette devices (not banned, not taxed), flavors (food flavors that are not taxed), and nicotine (with an excise tax stamp) separately.* The consumers can make a flavored vape from all these components on their own. *Such sales are not prohibited by the current legislation,* although finished vapes can be classified as prohibited illegal products.

9. Counteracting smuggling of vaping products is one of the important elements of the fight against their illegal trafficking. The technical re-equipment of checkpoints at the state border (to optimize their operation) with scanners and intelligent video control systems is a key element in counteracting smuggling of vaping products. *Since illegal vapes, cartridges and e-liquids are transported to consumers, including by the mail, it is important to minimize the flow of illegal e-cigarette trafficking through this channel.*

Having studied the practice of foreign countries, including the United States, Australia, and the EU, it can be argued that the *priority of state policy in the field of combating the illegal vape market is to identify the largest oases (outlets, operators) of illegal production and trafficking of these products.* It is necessary to identify and investigate the channels of supply of illegal vapes from retail outlets to distribution entities and subsequently to illegal manufacturers.

It is necessary *to improve the control tools for raw materials used for the production of e-liquids (especially nicotine), as well as empty e-cigarette devices, which are imported into Ukraine and may later be sold in illegal schemes.* When seizing

the equipment used for the illegal production of vaping products by law enforcement officers, it is relevant and appropriate to conduct examinations to establish the origin of this equipment and its supply channels.

An important measure to reduce the illicit market of liquids used in e-cigarettes is to *strengthen the coordination of control measures of state fiscal and law enforcement agencies*. In particular, the ESB, tax and customs services, border guards and police.

REFERENCES

1. Ukraine: Fourth Review of the Extended Arrangement under the Extended Fund Facility, Request for Modifications of a Performance Criterion, and Financing Assurances Review- Press Release; Staff Report; and Statement by the Executive Director for Ukraine URL: <https://www.imf.org/en/Publications/CR/Issues/2024/06/28/Ukraine-Fourth-Review-of-the-Extended-Arrangement-under-the-Extended-Fund-Facility-Request-551207>
2. Grana R, Benowitz N, Glantz SA. E-cigarettes: a scientific review. *Circulation*. 2014;129(19):1972-1986.
3. Excise policy and the illicit trade in tobacco products: in search of balanced solutions. T. Koshchuk, M. Pasichnyi / edited by T. Koshchuk, Growford Institute, K: 2024. URL: <https://www.growford.org.ua/research/aktsyzna-polityka-i-nelegalna-torgivlya-tyutyunovy-vyroby-u-poshu-kah-zbalansovanyh-rishen/>
4. E-Cigarettes – Worldwide. URL: <https://www.statista.com/outlook/cmo/tobacco-products/e-cigarettes/worldwide>
5. Israel Tax Authority. URL: https://www.gov.il/en/pages/sa211121_1
6. Gathoo, T. (2022). *The Taxation of E-cigarettes: An International Comparison* (Doctoral dissertation, University of Johannesburg).
7. Report from the Commission to the Council on Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco. 12.01.2018. URL: https://ec.europa.eu/taxation_customs/sites/taxation/files/report_excise_duty_manufactured_tobacco_12012018_en.pdf
8. Germany's New Tobacco Tax Laws. URL: <https://www.ruthlessvapor.com/blogs/ruthless-e-liquid/germanys-new-tobacco-tax>
9. Commission staff working document. Evaluation of the Council Directive 2011/64/EU of 21 June 2011 on the structure and rates of excise duty applied to manufactured tobacco. February 2020. URL: https://ec.europa.eu/taxation_customs/sites/taxation/files/10-02-2020-tobacco-taxation-report.pdf?fbclid=IwAR1uqPEEeWpOASnJmY3ngW1P7uFKPCri2mWumz9GXX9CZWptBEmmO9JJgc
10. Over four million illegal vapes seized at border. URL: <https://www.bbc.com/news/business-68099182>
11. The Dangers of Black Market Vaping Products. URL: <https://www.vapesuperstore.co.uk/blogs/news/the-dangers-of-black-market-vaping-products>
12. E-cigarettes: regulations for consumer products URL: <https://www.gov.uk/guidance/e-cigarettes-regulations-for-consumer-products>
13. Diaz, M. C., Silver, N. A., Bertrand, A., & Schillo, B. A. (2023). Bigger, stronger and cheaper: growth in e-cigarette market driven by disposable devices with more e-liquid, higher nicotine concentration and declining prices. *Tobacco Control*. <https://doi.org/10.1136/tc-2023-058033>
14. Illicit E-Cigarettes Flood Stores as F.D.A. Struggles to Combat Imports/ URL: <https://www.nytimes.com/2023/10/10/health/illegal-vapes-ecigarettes-fda.html>
15. Robert M. Califf, MD U.S. Food and Drug Administration 10903 New Hampshire Ave Silver Spring. URL: https://www.durbin.senate.gov/imo/media/doc/RJD%20Letter%20to%20FDA_2%20Year%20Vaping%20Delay.pdf

16. How the US vape and snus market protects itself from illegal supplies from China. URL: <https://thepage.ua/ua/economy/rinok-vej piv-ta-snyusiv-u-ssha-zahishayetsya-vid-nelegal-nih-postavok-iz-kitayu>
17. Proposed reforms to the regulation of vapes Impact Analysis. Office of Impact Analysis (OIA). October 2023. URL: <https://oia.pmc.gov.au/sites/default/files/posts/2024/01/Impact%20Analysis%20-%20Proposed%20reforms%20to%20the%20regulation%20of%20vapes.PDF>
18. Next steps on vaping reforms. URL: <https://www.health.gov.au/ministers/the-hon-mark-butler-mp/media/next-steps-on-vaping-reforms?language=en>
19. France to ban disposable e-cigarettes by 2025. Euractiv. 29.11.2023. URL: <https://www.euractiv.com/section/politics/news/france-to-ban-disposable-e-cigarettes-by-2025/>
20. State of smoking and health in France. URL: <https://globalactiontoendsmoking.org/research/tobacco-around-the-world/france/>
21. Italy. Ecigintelligence. URL: https://ecigintelligence.com/content_types/regulatory-briefing/?geography=italy
22. Italy's courts bring the gavel down on companies violating e-cigarette ad laws. URL: <https://ecigintelligence.com/italys-courts-bring-the-gavel-down-on-companies-violating-e-cigarette-ad-laws/>
23. E-CIGARETTE BAN & REGULATION: Global Status as of October. 2023. URL: https://files.ggtc.world/uploads/2024-05-27/15-35-29-349761/E-cig%20Ban%20and%20Regulation%202023_sb.pdf
24. Government of Canada, 1997. Tobacco and vaping products act. URL: <https://www.canada.ca/en/health-canada/services/health-concerns/tobacco/legislation/federal-laws/tobacco-act.html>
25. Latvia: e-cigarette regulation, March 2024. URL: <https://ecigintelligence.com/latvia-e-cigarette-regulation-march-2024/>
26. Tax regulation of the tobacco market in terms of its transformation [V.I. Korotun T.V. Koshchuk N.V. Novytska I.I. Khliebnikova] /under general editorship of T.V. Koshchuk Irpin-Khmelnyskyi, 2020. 132 p.
27. Estimation of the volume of legal and illegal markets for e-liquids and excise tax revenues from these products in Ukraine. FEU. 2021. URL: https://fru.ua/images/doc/analitics/2021/e-smoke_2021-web.pdf
28. The state budget lost UAH 5 billion due to the ban on flavored e-cigarettes. UNIAN. 28.09.2023. URL: <https://www.unian.ua/economics/finance/derzhavniy-byudzhet-vtrativ-5-milyardiv-griven-cherez-zaboronu-aromatizovanih-elektronnih-sigaret-12408309.html>
29. World No Tobacco Day in Ukraine: progress in Ukraine and survey results. Kyiv International Institute of Sociology. URL: <https://www.kiis.com.ua/?lang=ukr&cat=reports&id=1240&page=1>
30. Libanova: The results of polls in Ukraine should be treated with caution. Glavkom. 29.01.2024. URL: <https://glavcom.ua/country/society/do-rezultativ-opituvan-v-ukrajini-potribno-stavitis-oberezhno-libanova-983123.html>
31. Success rates with nicotine personal vaporizers: A prospective 6-month pilot study of smokers not intending to quit. November 2014. BMC Public Health 14(1):1159. URL:

- https://www.researchgate.net/publication/268039814_Success_rates_with_nicotine_personal_vaporizers_A_prospective_6-month_pilot_study_of_smokers_not_intending_to_quit
32. Official website of United Nations Population Fund. URL: <https://www.unfpa.org/data/world-population/UA>
 33. Use of tobacco and nicotine products and attitudes toward tobacco control measures: December 2023. KIIS. URL: <https://center-life.org/wp-content/uploads/2024/03/Vzhyvan-nia-tiutiunovykh-ta-nikotynovykh-vyrobiv-ta-stavlennia-do-antytiutiunovykh-zakhodiv-hruden-2023.pdf>
 34. Counterfeit cigarettes: dubious quality and unpaid taxes. ESB. 21.05.2024. URL: <https://esbu.gov.ua/news/kontrafaktni-syharety-sumnivna-iakist-ta-nesplacheni-podatky>
 35. After large-scale searches by the ESB at tobacco factories, one of the manufacturers lost its license. Business censor. 16.07.2024. URL: <https://biz.censor.net/news/3499970>
 36. The ESB has stopped the underground production of e-liquids in Kyiv region: UAH 365 million worth of products were seized. URL: <https://esbu.gov.ua/news/beb-na-ky-ivshchyni-prypynylo-pidpilne-vyrobnystvo-ridyn-dlia-kurinnia-vylucheno-produktsiiu-vartistiu-365-mln-hrn>
 37. Monitoring of illicit trade in tobacco products in Ukraine, 2024. Wave 2. Kantar. URL: <https://www.kantar.com/ua/inspiration/ait/monitoring-nelehalnoi-torgivli-tutunovih-vyrobiv- kviten-2024>
 38. Official UN data. URL: <https://data.unhcr.org/en/situations/ukraine>. Date of access: January 25, 2024.
 39. Report on internal displacement in Ukraine. International Organization for Migration. 2023. URL: https://dtm.iom.int/sites/g/files/tmzbd11461/files/reports/IOM_Gen%20Pop%20Report_R14_Displacement_ENG-UKR.pdf
 40. The official Telegram channel of Danylo Hetmantsev. URL: <https://t.me/getmantsevdanil/5985>
 41. Market analysis of snus, nicotine pouches and e-liquids in Ukraine. 2024. K.: Pro-consulting. 26 p.
 42. The ESB exposes a scheme for the production and sale of e-cigarettes in Lviv region: property worth UAH 21 million is seized. URL: <https://esbu.gov.ua/news/beb-vykryv-skhemu-vyrobnystva-i-zbutu-elektronnykh-syharet-na-lvivshchyni-vylucheno-maina-na-21-mln-hrn>
 43. Official website of the Economic Security Bureau of Ukraine. URL: <https://esbu.gov.ua/timeline?&type=posts>
 44. KIIS (2024) Results of the survey on the use of tobacco and nicotine products in Ukraine. URL: <https://www.kiis.com.ua/?lang=ukr&cat=reports&id=1386&page=1>
 45. Ban on single-use vapes in UK may 'flood market with illegal products'. The Guardian. URL: <https://www.theguardian.com/society/2023/sep/12/ban-on-single-use-vapes-in-uk-may-flood-market-with-products>
 46. The official Telegram channel of Yaroslav Zheleznyak. URL: <https://t.me/yzheleznyak/9407>
 47. National Revenue Strategy until 2030. 2023. URL: https://mof.gov.ua/storage/files/National%20Revenue%20Strategy_2030_.pdf

48. Law of Ukraine "On Amendments to the Criminal and Criminal Procedure Codes of Ukraine on the Criminalization of Smuggling of Goods" No. 3513-IX of December 09, 2023, URL: <https://zakon.rada.gov.ua/laws/show/3513-20#Text>
49. Official website of the State Border Guard Service of Ukraine. URL: <https://dpsu.gov.ua/uk/news>
50. Ukrainian Institute for the Future. The illegal tobacco market in the context of a full-scale war: challenges and threats. 2023. 40 p. URL: https://drive.google.com/file/d/1Ftoq2rI-ALzVPrZ84LTeJbJu58_mbXQ2t/view
51. FDA, Justice Department crack down on sale of illegal e-cigarettes by forming new task force URL: <https://edition.cnn.com/2024/06/10/health/illegal-e-cigarettes-new-task-force/index.html>

ANNEXES

Annex A

Characteristics of certain types of e-cigarettes

Name of product	Characteristics
<i>Disposable electronic cigarettes</i>	
Disposable e-cigarette 	Type of e-cigarettes with and without recharging. It consists of a battery, a cartridge and a spray bottle. After the aerosol stops evaporating, it should be disposed of.
<i>Reusable electronic cigarettes</i>	
Rechargeable e-cigarette 	A cigarette-like device consisting of a battery that is connected to a spray bottle and is used to heat the solution. It often contains an element that regulates the duration of consumption.
Medium-sized rechargeable e-cigarette in the form of a pen 	A device larger than a cigarette, often with a large capacity battery. Contains a disposable or replaceable cartridge/reservoir (also called a clearomizer). These devices are often equipped with a manual switch that allows you to adjust the puff length and frequency.
Large size rechargeable e-cigarette with tank (tanks or mods) 	A type of modified electronic cigarette ("mod") that contains a control board with advanced functionality. It includes a subtype of <i>Sub-Ohm Tank</i> , which is designed to create a large aerosol cloud with a higher delivery capacity of nicotine or other substances.
Mini-vape (pod-mod) 	Modern high-tech vaporizers, in which the large liquid tank is replaced by small replaceable cartridges with nicotine salt, are pods. Hence, the second name of these devices - pod-systems. Nicotine salts, which has a lower pH than freebase nicotine, allow inhalation of particularly high nicotine levels more easily and with less throat irritation than freebase nicotine. In general, pod-systems are a smaller version of vapes with an identical principle of operation. They consist of a battery and a heater that converts the contents of the pod into steam. These are miniature devices, thin and light, visually similar to elongated USB flash drives.

Source: compiled by the authors based on data from Nguten D., Aamodt G. Electronic Cigarettes the Past, Present and Future URL: <https://www.dentalcare.com/en-us/professional-education/ce-courses/ce451/the-history-of-e-cigarettes> and other Internet resources.



The Global Research on Optimal Ways for Development (GROWFORD) Institute is an independent non-governmental organization (Think Tank) that conducts strategic global research in the field of economics and finance, and assesses systemic risks, and develops optimal models of economic development for countries, regions and the world at large.



Office 30, 9/2 Velyka Vasylkivska St.,
01024, the city of Kyiv, Ukraine.

+38(096) 464-61-85

growford.org.ua
growford.institute@gmail.com