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Effects of a new EU Tobacco Taxation Directive on tax revenues, tobacco prevalence and public health in Bulgaria

Dimitar Sabev, Georgi Petkov and Emilia Naseva



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DIMITAR SABEV
GEORGI PETKOV
EMILIA NASEVA

Dimitar Sabev is Chief Assistant Professor at the Economic Research Institute, Bulgarian Academy of Sciences. Georgi Petkov is Associate Professor at the Institute for Population and Human Studies at the Bulgarian Academy of Science. Emilia Naseva is Associate Professor at the Department of Health Economics, Faculty of Public Health, Medical University of Sofia.

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Abstract

The study used the excise simulator TETSIM to project the effects – in terms of public revenues, smoking prevalence and averted tobacco-related premature deaths – of the draft provisions of the revised version of Council Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco. Our estimations indicate that the Bulgarian government has significant potential to increase its revenues from cigarette and heated tobacco product (HTP) taxation by introducing the provisions of the draft Tobacco Tax Directive, thereby contributing directly to improved public health and tobacco control. One of the recommended scenarios indicates expected increases of EUR 694m in tobacco excise and VAT receipts over three years, along with more than 37,000 lives saved.

Keywords: Excise, Taxation, Tobacco, Smoking

JEL classification: H24, I18

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1. Introduction

Of all European Union (EU) countries, Bulgaria has the highest tobacco prevalence¹ and tobacco-provoked mortality rate² as well as the lowest tobacco excise levels.³ These closely related facts indicate that taxation measures for tobacco control in Bulgaria need strengthening and widening.

This study aims to model the potential outcomes for Bulgaria when implementing the draft provisions of the revised version of Council Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco. The European Commission scheduled the launch of the revised Tobacco Taxation Directive (TTD) for 2023 but eventually postponed it. Instead, a draft version of the revised TTD was unofficially circulated among stakeholders. Among other things, the draft revision introduces a new methodology for determining the minimum excise rates on tobacco products. For member states with considerably lower taxation levels, like Bulgaria, the new excise rules will have a significant fiscal impact.

We used the Tobacco Excise Tax Simulation Model (TETSIM) developed by van Walbeek (2010) to project the effects of the draft revised TTD on Bulgaria. The TETSIM estimates not only the expected tobacco tax revenues but also the new levels of tobacco prevalence and, consequently, the premature deaths avoided by lowering tobacco consumption.

The general results of our estimations indicate that Bulgaria has significant potential to raise its government revenues from cigarette taxation when introducing the provisions of the draft TTD. According to one of the recommended scenarios, the expected increases of 1.36 billion Bulgarian leva (BGN; EUR 694 million) in the total tax receipts over three years will come on top of a reduced national cigarette prevalence, with more than 37,000 human lives saved.

¹ According to Eurostat (European Health Interview Survey, data collected in 2019), 36.2% of the Bulgarian population over 15 years of age are currently smokers. Second in line among the EU members is Greece, with 28.6%. According to the WHO estimates for 2022 (WHO 2024), the age-standardised tobacco use rate for Bulgaria was 39.5%.

² For 2021, the Global Burden of Disease database (<https://vizhub.healthdata.org/gbd-compare/>) estimated 107.71 attributable-to-tobacco deaths per 100,000 people in Bulgaria [age-standardised, 84.26-133.17]. Such a mortality rate is 2-3 times higher than in the 'old' EU member states.

³ Taxes in Europe Database (2024). Excise rates on cigarettes in Poland, the country with the second-lowest tobacco taxation level in the EU, were 17.5% higher than in Bulgaria.

2. New minimal excise duty rates in the draft revised TTD

A thorough impact assessment preceded the attempts to revise the TTD of 2011 and to propose excise rules better aligned with the current tobacco market (Economisti Associati 2019). However, the European Commission withheld the legislative proposal; instead, in December 2022, a draft version of the revised TTD was leaked among stakeholders.

A novel element in the draft TTD is the methodology for determining minimum excise duties, which considers domestic price levels, making the excise rates specific to each country. The formula is:

$$Rate_{MS}(t) = 2/3 * Rate_{EU} + 1/3 * Rate_{EU} * PLI_{MS(t-1)}/100$$

$PLI_{MS(t-1)}$ is the general Price Level Index (PLI) of the member state one year before the year of the excise adjustment. The basis of the PLI used in the formula is the actual individual consumption. In addition to this, the draft TTD requires yearly adjustments of the excise rates on tobacco products in line with the cumulative inflation rate of the previous three years.

Bulgaria's PLI for 2023 stood at 56.6% of the EU average (Eurostat n.d.). Given the proposed new minimal excise rate at the EU level of EUR 180 per 1,000 sticks ($Rate_{EU}$ in the formula), the new minimum for Bulgaria for 2024 would be EUR 153.96 per 1,000 sticks or EUR 3.08 (BGN 6.02; 1 EUR = BGN 1.95583) per pack of 20 cigarettes.

In 2024, the minimal cigarette excise level was BGN 194 per 1,000 sticks, or slightly above EUR 1.98 per pack. Therefore, the minimum excise rates in Bulgaria will have to be raised by more than 55% from their 2024 levels to meet the standards set by the revised EU regulation.

Importantly, there are indications that the European Commission has set the minimal excise rate on cigarettes at the EU level too low in its draft revised TTD (Lopez-Nicolas 2023). After the 2022 inflation surge, a level for $Rate_{EU}$ of presumably EUR 220 per 1,000 cigarettes seems better aligned with the new market realities. With such a general rate, the new minimal excise for Bulgaria would be roughly EUR 188 per 1,000 cigarettes.

In recent years, diverse novel tobacco products – primarily heated tobacco products (HTPs) – have built up a substantial market share while being generally more lightly taxed than manufactured cigarettes. The draft TTD also provides a framework for taxing this expanding tobacco segment. Notably, Bulgaria already fulfilled one of the draft TTD approaches for calculating the minimal excise level for HTPs. The draft TTD indicated EUR 130 per kilogram of tobacco contained in HTPs, while the Bulgarian excise calendar applied the specific rate of EUR 144.2 per kilogram in 2023.

In the following sections, we use the TETSIM to model four scenarios of tobacco excise policy in Bulgaria. We step on the official data for 2023 and project until 2027 the expected tax revenues, the tobacco industry's profits, smoking prevalence, and other related variables for manufactured cigarettes and HTPs.

3. Assumptions and scenarios

3.1. GENERAL ASSUMPTIONS OF THE MODEL

The TETSIM bases its fiscal and demographic predictions on a set of assumptions about mid-term macroeconomic developments. As listed in Table 1, we used the latest forecasts of the Bulgarian Ministry of Finance (MoF 2024) on the growth of the gross domestic product (GDP) and the Consumer Price Index (CPI) until 2027, except for the expected GDP growth rate for 2024, where the more conservative estimation of the Bulgarian National Bank (BNB 2024) has been used. We assumed a 0.5% annual population decline until 2027, based on the average value observed for the last decade (-0.58% annually when excluding the atypical years 2021 and 2022).

We model four segments of the Bulgarian tobacco products market: economy, mid-priced, premium and HTP. Based on the partial data published until 2021 by the Customs Agency and the estimations of a market research agency (Euromonitor International 2023), we assume that the market for manufactured cigarettes is divided between economy, mid-priced and premium brands in the proportion of 40:40:20. To this, we add the rapidly growing HTP segment. According to the Customs Agency, it increased by 87.4% in 2023, reaching 563.4 tonnes, which corresponds to roughly 1.84 billion heating sticks. Our model set the initial share of HTPs in the national tobacco market at 9.86%, with shares of the cigarette segments adjusted accordingly.

Our model assumes that, as a result of higher prices, some consumers of premium cigarette brands will turn to the mid-priced segment and some consumers of mid-priced brands will switch to economy brands. These cross-elasticity coefficients are set at 0.2. According to our model, the weighted average price (WAP) of manufactured cigarettes in 2023 was BGN 5.66 (EUR 2.89). This figure is almost identical to the actual WAP of BGN 5.65 reported by the Customs Agency.

The World Health Organization (WHO 2024) estimated Bulgaria's tobacco prevalence rate at 39.5%. The issue of tax pass-through from the tobacco industry side is discussed in Jovanovikj et al. (2024); here, we assume that the industry will stick to its current low-price strategy in Bulgaria until 2027 (see Section 5 below). The proportion of smokers who will avoid a tobacco-related premature death by quitting smoking was set at 33%, following the conservative assumption of Goodchild et al. (2016).

The price- and income-elasticity coefficients that we used in our simulations are generally based on the results of the macro model presented in the latest landscape report on the Bulgarian tobacco market (Sabev forthcoming). To reflect the finding that lower-income groups in Bulgaria are much more price-sensitive (Sabev and Petkov 2024), we assumed the highest elasticity coefficient for the economy segment (-0.8) and a smaller elasticity for both the mid-priced segment (-0.5) and the premium segment (-0.3). The resulting weighted price-elasticity coefficient of cigarette demand (-0.58) is consistent with the estimations for the Western Balkan countries (Vladislavjevic et al. 2022) and slightly above the

estimations for middle- and high-income countries (NCI and WHO 2016).⁴ The income elasticity coefficient is calibrated to 0.6, the same as the estimated coefficient in the macroeconomic model. Regarding the elasticities of the HTP segment, we used the estimations of Dauchy and Shang (2024): price elasticity of -1.2 and income elasticity of 1.0. It has to be noted that the proper elasticity of HTP demand is still an open question in the tobacco control literature, with newer studies estimating an average own-price elasticity of -0.98 (Qian 2024).

Table 1 / Basic assumptions and coefficients

	Economy and demography			
	2024	2025	2026	2027
GDP growth, %	2.1	2.7	2.7	2.6
CPI growth, %	2.4	2.8	2	1.9
Population, thousands	6,413	6,381	6,349	6,318
Population aged 15+, thousands	5,509	5,481	5,454	5,427

Notes: 2023 GDP per capita: BGN 28,730. Annual population decline: 0.5%. 85.9% of the population is aged 15 years or above. 39.5% tobacco prevalence

	Tobacco market			
	Economy	Mid-priced	Premium	HTP
Retail Margin	5%	5%	6%	6%
Industry pass-through	CPI + 1 pp	CPI + 2 pp	CPI + 5 pp	CPI (0% for 2024)
Income elasticity	0.6	0.6	0.6	1
Price elasticity	-0.8	-0.5	-0.3	-1.2

Health Parameters

Notes: 50% of the decreased consumption is due to quitting / not starting smoking. 33% of people who quit/have not started smoking will be saved from premature death. 'pp' = percentage points.

Note: Retail margins are based on a tax audit revealed by the Varna Administrative Court (2020), which said that the retail margin of cigarettes was 'fixed and in the range of 5-6%'.

Sources: MoF (2024), BNB (2024), NSI (2024), Eurostat (n.d.), WHO (2024); authors' calculations.

3.2. FOUR SCENARIOS ON CIGARETTE EXCISE POLICY

We developed four scenarios for the cigarette excise policy in Bulgaria until 2027, based on official data for 2023. A new tobacco excise schedule entered into force in Bulgaria on 1 March 2023, with planned small annual excise increases until 2026. In all four scenarios, the excise levels stipulated by the Excises Duties and Tax Warehouses Act will be retained in 2024. The differences in the cigarette excise policy will unfold in the next three years (i.e. from 2025 to 2027).

- › **Scenario 1 (Gradual):** This scenario envisions that Bulgaria will reach the minimum cigarette excise rates indicated in the draft revised TTD in three equal steps. Starting in 2025, Bulgaria will increase its minimum excise rate by BGN 0.71 (EUR 0.36) per pack annually, thus reaching the nationally specific minimal excise of BGN 6.02 (EUR 3.08) per pack in 2027.
- › **Scenario 2 (One Big Step):** This scenario projects that Bulgaria will increase its cigarette excise towards the levels of the draft revised TTD in one big step in 2025 (i.e. nearly 90% of the total excise

⁴ NCI and WHO (2016: 112): 'Nearly all empirical studies have found that the price elasticity of demand for tobacco products lies between zero and minus one. Estimates for high-income countries are clustered around -0.4; estimates for low- and middle-income countries (...) are clustered around -0.5.'

increase until 2027 will happen in 2025). In the next two years (i.e. 2026 and 2027), an inflation indexation of the excise rates will be applied.

- › **Scenario 3 (Ambitious):** This scenario embraces a higher target corresponding to minimal excise rates on the EU level of EUR 220 per 1,000 sticks. Given the Bulgarian PLI, this would be EUR 188.2 per 1,000 cigarettes, or EUR 3.76 (BGN 7.36) per pack. Our scenario assumes that this excise rate will be reached by 2027 in three equal increases of BGN 1.16 per pack.
- › **Scenario 4 (Status Quo):** This scenario assumes that Bulgaria will stick to its current excise calendar. The Excises Duties and Tax Warehouses Act envisions modest excise increases in 2025 and 2026; we project the same nominal increases for 2027 as in 2026.

All four scenarios assume specific excise rates on HTPs equal to these envisioned in the excise calendar. According to our scenarios, the same nominal increase as the one in 2026 will be introduced in 2027. As a result, by 2027, the specific excise on a pack of HTPs would be BGN 2.57 (EUR 1.31).

The tax and price developments that follow from the four scenarios are presented in Table 2.

Table 2 / Minimal excise rates, total tax and retail price per pack of cigarettes, in current BGN

		2024	2025	2026	2027
Minimum excise per pack	<i>Scenario 1</i>	3.88	4.59	5.30	6.02
	<i>Scenario 2</i>	3.88	5.80	5.92	6.02
	<i>Scenario 3</i>	3.88	5.04	6.20	7.36
	<i>Scenario 4</i>	3.88	4.05	4.22	4.39
Total tax per pack	<i>Scenario 1</i>	4.86	5.72	6.59	7.46
	<i>Scenario 2</i>	4.86	7.20	7.34	7.47
	<i>Scenario 3</i>	4.86	6.27	7.68	9.09
	<i>Scenario 4</i>	4.86	5.07	5.28	5.49
WAP per pack	<i>Scenario 1</i>	5.90	6.81	7.74	8.65
	<i>Scenario 2</i>	5.90	8.38	8.52	8.68
	<i>Scenario 3</i>	5.90	7.41	8.91	10.41
	<i>Scenario 4</i>	5.90	6.14	6.37	6.62

Source: authors' calculations

4. Fiscal and public health effects, 2024-2027

Here, we follow the outcomes of the four scenarios outlined above in terms of their effects on state revenues from tobacco taxes, the financial results of the tobacco industry (see Section 5), retail prices of a pack of cigarettes, smoking prevalence, the number of people who choose to quit or not start smoking, and the number of prevented smoking-induced premature deaths. The results are listed in Table 3, which is central to this study.

Data presented in Table 3 lead to the following general conclusions about the outcomes of each scenario:

- › **Scenario 4 (Status Quo)**, which follows the current excise calendar – which was designed and implemented with the direct involvement of the tobacco industry (Antonov et al. 2022) – is detrimental to public health, with an expected increase in tobacco prevalence above 40% by 2027 as well as more than 11,000 additional premature deaths due to tobacco use. The fiscal effects are limited to a 6% growth in tax revenues by 2027, which pales compared to the other scenarios on cigarette excise policy. The tobacco industry is the clear beneficiary of the current excise policy, under which it is expecting to increase its real net revenues by 4.2% (2027 vs. 2024), or by 11% in nominal terms.
- › **Scenario 3 (Ambitious)** envisages raising the amount of tax per pack (excise duty and VAT) to EUR 4.65 by 2027. Under this scenario, the benefits in terms of public health would also be the biggest, with 235,000 fewer smokers compared to the current path. For the three years until 2027, the expected additional tax revenues would be more than EUR 1.2 billion. The nominal price per pack in the economy segment in 2027 will be BGN 10.02 (EUR 5.12), which is roughly 75% above the 2024 level in nominal terms.⁵
- › **Scenario 2 (One Big Step)**, which assumes one bigger excise increase in 2025 followed by two years of inflation indexation, could secure additional budget revenues of EUR 1.09 billion over three years. It could contribute to lowering the national tobacco prevalence by almost two percentage points (pp), which translates into 34,000 avoided premature deaths. However, in terms of health effects, the results of this scenario are less sustainable compared to those of the Scenario 1 (Gradual), as the simple inflation indexation envisioned for 2026 and 2027 is not enough to sustain the positive trends.
- › **Scenario 1 (Gradual)** could deliver additional fiscal revenues of BGN 1.36 billion (EUR 695 million) compared to the current excise calendar. At the same time, the number of smokers would decrease by 150,000, with almost 38,000 avoided premature deaths due to tobacco use. Although this is not the 'best' scenario in terms of fiscal revenues and public health, one of its positive features is that it could deliver sustainable results while avoiding 'excise shocks', with the expected annual increases of the real weighted average retail price in 2025, 2026 and 2027 being 12.5%, 11.6% and 10.2%, respectively.

⁵ With such a price increase, it is possible to hypothesise that the price elasticity of consumption could become higher than the one used in the four simulations. We also followed this assumption by applying a -0.84 total elasticity coefficient, with elasticity coefficients of the separate market segments being -1.1 for the economy, -0.8 for the mid-priced, and -0.4 for the premium segments. Even with these over-restrictive assumptions, the real growth in budget revenues (2024 vs. 2027) would be 17%, and there would also be a sharp decline in tobacco prevalence (33.8% by 2027).

Table 3 / Projected effects until 2027 under four different scenarios on cigarette excise taxes

	2024	2025	2026	2027
Tobacco tax revenues (in 2023 BGN m)				
Scenario 1	4,261	4,573	4,886	5,179
Scenario 2	4,261	5,074	5,138	5,194
Scenario 3	4,261	4,766	5,232	5,650
Scenario 4	4,261	4,339	4,425	4,517
Industry 'net revenues' (in 2023 BGN m) *				
Scenario 1	377	363	356	350
Scenario 2	377	336	344	352
Scenario 3	377	352	337	326
Scenario 4	377	379	386	393
Retail price per economy pack, nominal BGN				
Scenario 1	5.53	6.46	7.38	8.31
Scenario 2	5.53	8.00	8.17	8.31
Scenario 3	5.53	7.03	8.52	10.02
Scenario 4	5.53	5.77	6.00	6.23
WAP (in 2023 BGN)				
Scenario 1	5.76	6.48	7.23	7.97
Scenario 2	5.76	7.97	7.95	7.96
Scenario 3	5.76	7.04	8.31	9.53
Scenario 4	5.76	5.83	5.94	6.06
Tobacco prevalence, %				
Scenario 1	39.57	38.67	37.97	37.39
Scenario 2	39.57	36.89	37.24	37.60
Scenario 3	39.57	37.92	36.73	35.83
Scenario 4	39.57	39.75	39.95	40.13
Number of smokers, thousands				
Scenario 1	2,180	2,120	2,071	2,029
Scenario 2	2,180	2,022	2,031	2,041
Scenario 3	2,180	2,078	2,003	1,944
Scenario 4	2,180	2,179	2,179	2,178
Premature deaths averted, cumulatively				
Scenario 1	-1,183	15,067	27,498	37,706
Scenario 2	-1,183	47,223	40,672	33,946
Scenario 3	-1,183	28,653	49,786	65,766
Scenario 4	-1,183	-4453	-8,054	-11,261
Tax revenues vs. Scenario 4, cumulatively (in 2023 BGN m)				
Scenario 1		234	695	1,357
Scenario 2		735	1,448	2,125
Scenario 3		427	1,234	2,367
Scenario 4				
Real tax revenue growth, 2027 vs. 2024, %				
Scenario 1		7.3	14.7	21.6
Scenario 2		19.1	20.6	21.9
Scenario 3		11.9	22.8	32.6
Scenario 4		1.8	3.8	6.0

Note: * We approximated the 'net revenues' of the tobacco industry by subtracting two components from the net-of-tax sum: (i) the retail margin and (ii) the 'producer price' estimated on the basis of COMTRADE import data (for 2023, for Bulgaria, USD 0.307 per pack of cigarettes and USD 0.311 per pack of HTPs).

Source: authors' calculations

To sum up, Table 3 shows four distinct approaches to the national tobacco excise policy. It is clear that sticking to the current path leads to a deepening of the tobacco epidemic, accompanied by a modest gain for public revenues – a scenario that only benefits the tobacco industry. The other three scenarios differ in terms of their specific ambitions, yet all of them promise considerably higher public revenues over the next three years (EUR 0.7 billion to EUR 1.2 billion more compared to the current excise calendar), while the national tobacco prevalence would recede from its current record levels.

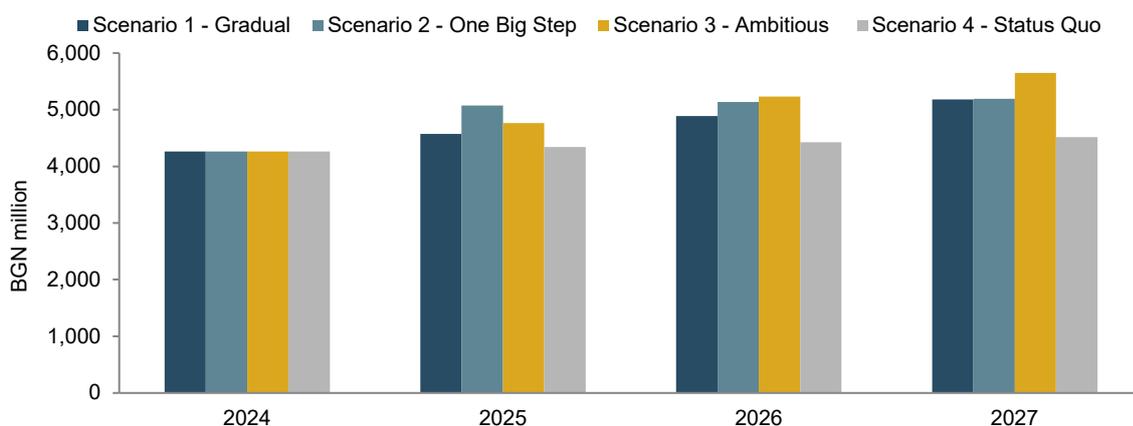
5. Comparing the effects of the different scenarios

The excise scenarios outlined in Table 2 and their outcomes shown in Table 3 are basic in the sense that they could be further adjusted to reflect different policy approaches. For instance, the projected taxation on HTPs in all listed scenarios is expected to remain low, with a tax burden of less than 55% of the retail price by 2027, compared to approximately 86% for cigarettes under the Gradual scenario. Consequently, there is significant potential for implementing more ambitious taxation of HTPs. Similarly, the proposed annual inflation adjustment in the draft revision of the TTD could be added to the prospective minimum rates of the basic scenarios developed in the previous section.

Importantly, facing a burgeoning budget deficit, the Bulgarian Ministry of Finance (under the former caretaker government⁶) proposed to accelerate the excise calendar by introducing the higher rates scheduled for 2026 as early as 2025. While this is a step in the right direction, it remains a modest one. Our simulations estimate that this proposal would generate an additional BGN 70 million (EUR 36 million) in public revenue, with only a minor reduction in the number of smokers. The future of this proposal (or its potentially more ambitious version) remains uncertain in the context of the new budget procedure and the fragmented parliament. Nonetheless, the fact that the Bulgarian Ministry of Finance recognises the need for higher tobacco taxation is noteworthy.

Below, we compare the results of the described scenarios with respect to their fiscal and public-health effects. Figure 1 illustrates the total tobacco tax revenues (TTRs) projected from 2024 to 2027.

Figure 1 / Total tobacco tax revenues (2023 BGN m)



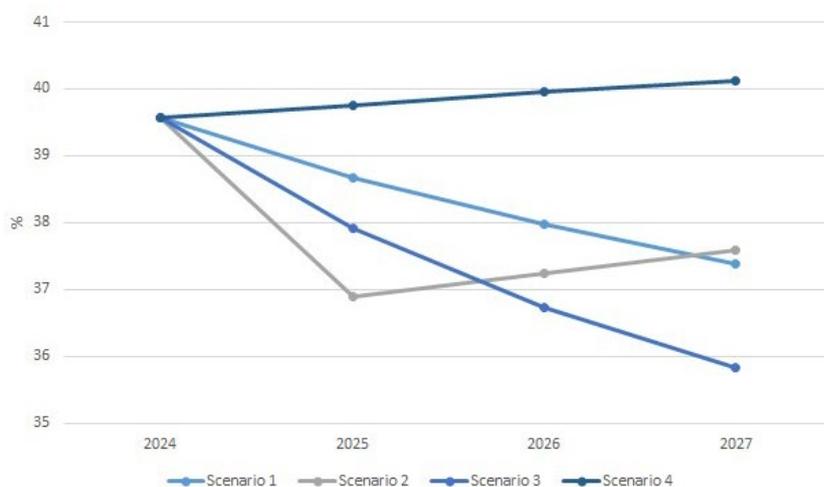
Source: author's calculations

⁶ Between 4 April 2021 and 27 October 2024, seven general elections were held in Bulgaria. After months of intense negotiations, the Bulgarian Parliament approved the next regular government on 16 January 2025. The new government immediately withdrew the draft public budget of the former caretaker government, promising to revise and submit a new draft by 14 February. According to the chairman of the Parliament, the new budget of the state will be passed by 10 March. To date, there are no indications regarding whether the proposed tobacco excise increases will hold.

The Status Quo scenario only anticipates a modest TTR growth of 1.8% to 2.1% per annum. In contrast, the One Big Step scenario leads to a substantial TTR increase of 19% in the first year, followed by minimal increases in the subsequent two years. The Gradual and Ambitious scenarios share a similar approach to raising excise taxes in three equal steps, differing only in the minimum excise rate to be achieved by 2027. Overall, the alternative scenarios to the current excise calendar are all capable of generating significant additional TTRs for the public budget.

The next two figures highlight the impact of different tobacco excise policies on smoking prevalence and public health. Figure 2 clearly shows that maintaining the current excise policy would further increase the already high smoking-prevalence rate in Bulgaria to over 40%. Conversely, the other scenarios may contribute to a decrease in the prevalence rate, with Scenario 3 (Ambitious) being the most effective. Although Scenario 2 (One Big Step) initially results in a significant reduction in smoking prevalence, its impact diminishes over the following two years. This can be attributed to higher income growth and the relatively high income elasticity of tobacco demand in Bulgaria, which offsets the positive effects of the proposed tax increase. In other words, this finding underscores the importance of considering changes in disposable income and the affordability of tobacco products when designing future policy measures to ensure sustained health benefits. The Gradual scenario demonstrates a more consistent impact, suggesting that steady, moderate steps may be a more effective strategy than one-time major interventions.

Figure 2 / Smoking prevalence, 2024-2027

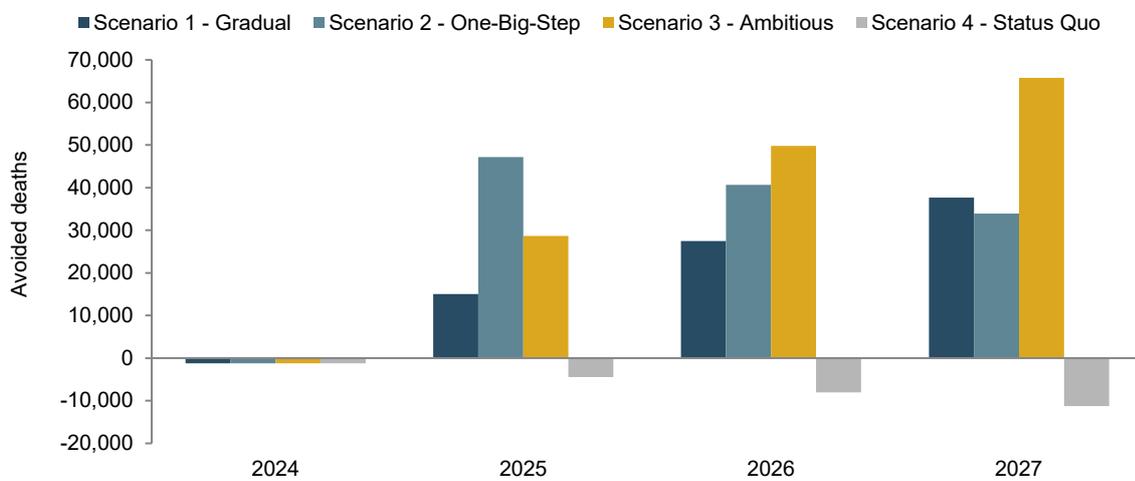


Source: authors' calculations

Figure 3 (below) starkly illustrates the 'health costs' associated with the current tobacco tax policy. If the status quo is maintained, it is projected that by 2027, an additional 10,000 deaths attributable to tobacco use will occur on top of the current elevated tobacco-induced mortality. The data indicate that, under the Status Quo scenario, the number of smokers is projected to remain constant over the forecasting period: 2.179 million in 2024 compared to 2.178 million in 2027 (although the prevalence rate would increase due to the general population decline). This raises a valid concern about whether the current excise calendar has been introduced exactly to preserve the scope of the tobacco industry market in Bulgaria.

Regarding the public health outcomes of the other scenarios, the Gradual scenario appears slightly more effective than the One Big Step scenario at the end of the fourth year. This reinforces the idea that implementing policy interventions in a gradual, consistent manner may yield better long-term results than initial aggressive measures followed by a relaxation of tobacco control efforts. Nevertheless, all three scenarios alternative to the status quo are capable of delivering substantial public health benefits. For example, when accounting for the negative effects of the Status Quo scenarios, up to 50,000 and 77,000 premature deaths could be avoided for Scenario 1 (Gradual) and Scenario 2 (One Big Step), respectively.

Figure 3 / Prevented premature deaths due to smoking, 2024-2027



Source: authors' calculations

6. Discussion and conclusion

6.1. LIMITATIONS OF THE STUDY

Our simulations using the TETSIM took into account the complex structure of Bulgaria's tobacco market as well as several key macroeconomic and demographic indicators. Therefore, our predictions regarding expected tobacco prevalence and tax revenues are consistent and reliable. However, it is important to note that the TETSIM produces only scenarios (i.e. approximations of reality). For instance, in 2023, the base year for our scenarios, the WAP of cigarettes in the model was BGN 0.01 higher than the price reported by the Customs Agency. This small difference (of only 0.177%) resulted in an initial distortion of the projected excise revenues amounting to EUR 3 million. Nonetheless, this discrepancy is minor compared to the aggregate figures and did not significantly affect our main conclusions.

A significant limitation of the study is that the cross-elasticity coefficients between cigarettes and HTPs are not well researched. HTPs are relatively new products, making it challenging to predict and model consumer responses to their price increases, particularly when they compete for consumer spending with traditional tobacco products.

In the case of Bulgaria, we did not model the market for fine-cut tobacco – also known as hand-rolled or roll-your-own (RYO) tobacco – as it is relatively small (less than 5%) and the share of illicit trade in this segment is substantial. Additionally, we did not analyse the demand for electronic cigarettes (e-cigarettes) and other novel tobacco products due to their smaller volumes and fluctuating consumer interest.

Perhaps the most important limitation of this study is that a substantial volume of cigarettes sold legally in Bulgaria is not consumed domestically. When comparing the number of cigarettes released for consumption reported by the Customs Agency with the expected market volumes derived from the estimated tobacco prevalence rate and the average consumption per smoker (15.2 cigarettes per day as of 2019; OECD n.d.), a gap of roughly 200 million packs of cigarettes emerges, amounting to almost one fourth of the total. This share has been growing over the years.

There are four possible explanations for this extra-domestic consumption of cigarettes sold legally in Bulgaria. First, Bulgarian expat smokers: at least 180,000 Bulgarians living and working abroad in the EU are smokers, considering the average smoking prevalence rate for the EU and the total number of Bulgarian expats. Second, international tourists arriving in Bulgaria. Third, EU citizens from Greece and Romania who live in regions bordering Bulgaria and take advantage of the significant price difference for cigarettes in Bulgaria. Finally, organised illicit cross-border trade of cigarettes is also a factor. In fact, media reports indicate that cheaper Bulgarian cigarettes are being exported to countries like Belgium and the Netherlands, undermining the budget expectations of those countries and reducing the anticipated public health benefits of their higher excise duties (Bulgarian News Agency 2024).

Given that our model is calibrated using assumptions and data relevant only to the domestic economy, its results could prove inaccurate if there is a significant narrowing of the cigarette price gap between Bulgaria and other EU countries. However, at least in the medium term, this scenario is unlikely to occur.

The current price differentials are substantial (see the Appendix) and are unlikely to disappear even if there is a significant increase in tobacco taxes in Bulgaria. Furthermore, many other EU member states are implementing more ambitious tobacco tax policies alongside provisions from the draft revised TTD, which may widen the current price gaps even further.

6.2. THE PREFERABLE CIGARETTE EXCISE SCENARIO FOR BULGARIA

Our study identified considerable opportunities for increasing tobacco taxes in Bulgaria, which could help to alleviate some of the recent national fiscal challenges while preventing tens of thousands of premature deaths associated with tobacco use. The current excise calendar is inadequate for effective tobacco control and overlooks significant benefits for the public budget; its only advantage is that it promotes the interests of the tobacco industry in the medium term.

Currently, the price of cigarettes in Bulgaria is unacceptably low and should be quickly adjusted to align with EU standards, which are expected to become mandatory in the near future. Taking timely excise policy action would prevent potential political and administrative difficulties in the future, when much higher excise rates will be required. Among the proposed schemes, Scenario 1 (Gradual) is the most moderate approach. By gradually increasing the real retail price by 38% over three years, approximately 37,700 premature deaths could be prevented (or even 49,000, considering the expected effects of the current excise policy). Additionally, by 2027, this scenario could generate nearly EUR 0.7 billion in additional revenue for the national budget. Under this scenario, even the tobacco industry will not face any nominal losses, sustaining its nominal revenues at their 2024 levels until at least 2027.

The benefits of implementing a more ambitious tobacco excise policy could be even greater for both fiscal health and public well-being in Bulgaria. What is needed is the political will to increase cigarette excise levels, thereby helping to achieve these goals.

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Appendix

Table A 1 / Price differentials and potential financial gain when carrying 800 cigarettes (40 packs) bought in Bulgaria into other EU countries, 2023

	Average price, EUR	Price difference with Bulgaria, EUR per pack	% over Bulgarian price	'Profit' from carrying through the border of 40 packs bought in Bulgaria, EUR
Austria	5.5	2.72	97.8	108.8
Belgium	7.29	4.51	162.2	180.4
Bulgaria	2.78			
Croatia	4.11	1.33	47.8	53.2
Cyprus	4.36	1.58	56.8	63.2
Czechia	5.11	2.33	83.8	93.2
Denmark	7.25	4.47	160.8	178.8
Estonia	4.67	1.89	68.0	75.6
Finland	9.38	6.6	237.4	264
France	10.16	7.38	265.5	295.2
Germany	6.65	3.87	139.2	154.8
Greece	4.17	1.39	50.0	55.6
Hungary	4.71	1.93	69.4	77.2
Ireland	14.32	11.54	415.1	461.6
Italy	5.2	2.42	87.1	96.8
Latvia	3.97	1.19	42.8	47.6
Lithuania	4.17	1.39	50.0	55.6
Luxembourg	4.9	2.12	76.3	84.8
Malta	5.35	2.57	92.4	102.8
Netherlands	7.56	4.78	171.9	191.2
Poland	3.15	0.37	13.3	14.8
Portugal	4.78	2	71.9	80
Romania	4.45	1.67	60.1	66.8
Slovakia	4.25	1.47	52.9	58.8
Slovenia	4.18	1.4	50.4	56
Spain	4.62	1.84	66.2	73.6
Sweden	5.88	3.1	111.5	124

Sources: Taxes in Europe Database (for the weighted average price); author's estimations

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