

*Policy Brief*

***STRENGTHENING PUBLIC HEALTH AND FISCAL REVENUES IN MONTENEGRO:  
TOBACCO TAXATION AS A POLICY TOOL***

*– A simulation model –*

The primary objective of this research is to establish an evidence base for policymakers to estimate the likely outcomes of various excise tax change scenarios. Specifically, this analysis focuses on projecting changes in government revenue, tobacco consumption, smoking prevalence, and the number of lives saved due to tax, price, and consumption changes. By modeling these anticipated effects, the simulation offers a strategic tool for aligning tobacco tax policy with public health and fiscal objectives. Grounded in robust empirical evidence demonstrating the effectiveness of excise tax increases in curbing cigarette consumption and boosting revenue (Chaloupka et al., 2012) this model is an important resource for policymakers committed to optimizing health and economic outcomes through tobacco control measures.

***Cigarette Use in Montenegro: Key Facts***

Montenegro’s high smoking prevalence, one of the region’s highest at 38% in 2022 (Survey on Tobacco Consumption in Montenegro, or STC-MNE 2022), is a critical public health concern. Smoking frequently begins early, with one in five current smokers trying their first cigarette before age 15. Limited access to effective cessation programs means that most attempts to quit result in relapse within a month or less (Survey on tobacco consumption in Southeastern European countries, or STC-SEE 2020). High smoking intensity, with an average of 19.7 cigarettes consumed daily (STC-SEE 2020), significantly impacts household budgets. In low-income households, where 5.6% of spending is allocated to cigarettes, tobacco expenses often crowd out essential needs, potentially worsening poverty levels (Mugosa et al., 2024).

According to the proposal of the Fiscal Strategy of Montenegro for the Period 2024-2027 and the Law on Excise adopted in October 2024, the government plans to adhere to the excise schedule for cigarettes outlined in Table 1. With the specific excise duty set at €53.5 per 1,000 cigarettes, Montenegro is on track to meet the EU Tobacco Products Directive’s minimum requirement of €90 per 1,000 cigarettes by January 1, 2025. Additionally, the country has already satisfied the World Health Organization's minimum tax burden standard on cigarette retail prices (75 percent). Currently, no further increases in the specific tax are planned after January 2025, and any future adjustments will align with EU directive updates.

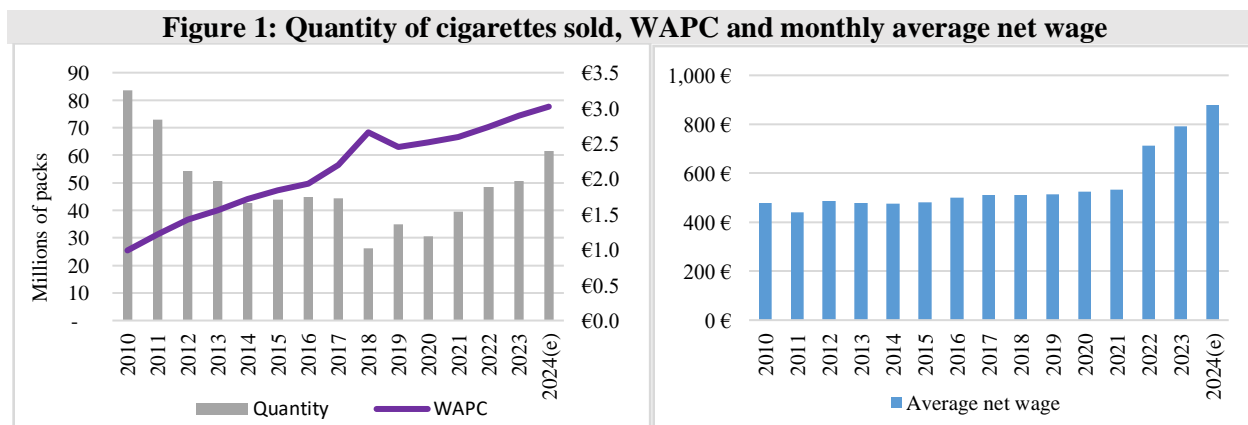
**Table 1. The Excise tax calendar from 2020 to 2025**

Year	Specific Excise Tax (in € per 1,000 sticks)	Ad Valorem Excise Tax (% cigarette retail price)
2020	33.5	30.5
2021	37	29
2022	40.5	27.5

2022	44	26
2023	47.5	24.5
2023	49	24.5
2024	50.5	24.5
2024	52	24.5
2025	53.5	24.5

Source: Ministry of Finance

The cigarette market in Montenegro relies entirely on imports, with approximately 100 different brands in 2023. Despite a steady increase in cigarette prices over the past 15 years, they remain low compared to European Union levels (WHO, 2021), with the price of the most-sold brand of €2.90 in 2023 in nominal terms. As is shown in Figure 1, legal cigarette consumption showed a steady decline from 2010 to 2018, likely due to increased prices and only small variations in average wages. However, consumption has risen notably since 2020, even as prices continued to increase. This shift is partly attributed to a reduced illicit market share (Tobacconomics, 2023) and significant income growth during this period, which contributed to higher consumption levels. Starting in 2022, the Montenegrin government implemented an expansive fiscal policy that significantly raised average net wages and minimum pensions, thus further increasing disposable incomes. Coupled with a slower pace of cigarette price hikes, this income growth resulted in greater cigarette affordability, with Montenegro scoring 0 for affordability on the Tobacconomics Tax Scorecard in 2022 (Drope et al., 2024). According to ISEA research, between 2020 and 2023, cigarette affordability increased annually by 13%, 14%, and 7%, respectively.



Source: Ministry of Finance (Directorate for Issuing Permits for the Production, Processing), and Trade of Tobacco Products (Tobacco Agency) and Statistical Office of Montenegro (Monstat)

Note: The price, quantity of cigarettes sold, and net wages for 2024 are projected based on the available data from the first three quarters of the year.

The recent increase in income levels in Montenegro creates a distinct framework for assessing tobacco tax policy. All other variables held constant, higher incomes make cigarettes more affordable, which may reduce the intended impact of tax increases on lowering tobacco use. This highlights the importance of addressing both pricing and income dynamics to develop effective tobacco control policies (see the WHO technical manual on tobacco tax policy and administration, 2021). Given that the newly adopted Law on Excise from October 2024 does not include further

increases in the specific excise tax from January 2025, coupled with expected net wage increases in next years, there is a valid concern that cigarette consumption may continue to rise.

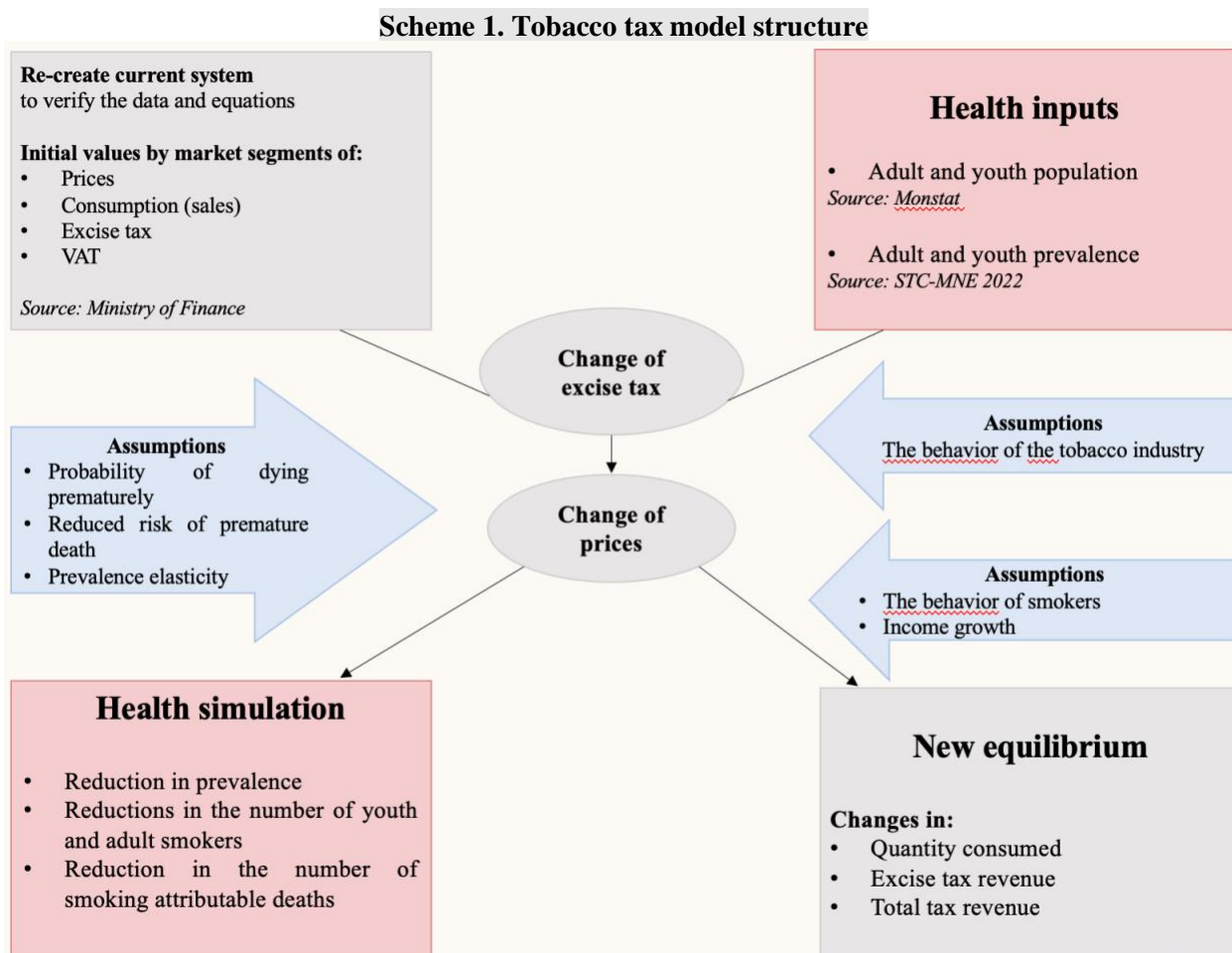
To highlight the importance of considering purchasing power when formulating tobacco control policies and to emphasize the role of price increases as the most effective tool for reducing tobacco use, we will present three simulation scenarios, using 2024 as a baseline year:

- **Scenario I** follows the excise calendar defined by the Law;
- **Scenario II** assumes a continued annual increase of €3 in the specific excise tax in the next two years (€55 per 1,000 sticks in 2025 and €58 per 1,000 sticks in 2026), as has been the trend in 2023 and 2024,
- **Scenario III** assumes a 15% annual increase in the specific excise tax.

These scenarios aim to provide insights into how different excise adjustments could impact affordability, revenues, and consumption in this evolving economic landscape.

### Model framework and key assumptions

The basic structure of the simulation mode used is presented in Scheme 1 below.



The model begins by replicating the current system and establishing a baseline scenario using initial input data values for 2024. This research uses data categorized into different market segments (premium, mid-price, and economy). This includes the retail price per pack of 20 cigarettes, cigarette consumption, specific and ad valorem excise tax rates, and value-added tax (VAT), as provided by the Ministry of Finance. For 2024, estimates for cigarette prices and quantities sold are derived from available data from the Tobacco Agency. Baseline data for assessing the public health effects of excise changes – such as adult and youth population figures – are sourced from Monstat (Census data 2023), while smoking prevalence rates are taken from STC-MNE 2022.

In the second step, the model introduces changes to the excise tax, depending on the scenario applied. The model is then rerun to calculate new retail prices, reflecting the impact of tax changes. Estimating these prices across different market segments requires assumptions about the tobacco industry's pricing strategies in response to excise tax adjustments. Based on ISEA research (Mugoša et al., 2023a) in Montenegro's tobacco market, the industry tends to **under-shift** the tax increase for the cheapest products (raising prices by less than the tax increase), **over-shift** the tax increase for premium products (raising prices by more than the tax increase), and **fully pass through** the tax increase in the mid-price segment. Estimated pass-through coefficients from the mentioned ISEA research are applied to simulate the industry's pricing behavior. Additionally, the model assumes that the net-of-tax price will increase in line with the projected inflation rate for 2025-2026, further refining the simulation of retail price changes.

When cigarette prices rise, smokers may respond in various ways: reducing smoking intensity, quitting altogether, switching to cheaper brands, or turning to the illicit market. To capture these potential behaviors, the model incorporates estimated own-price and assumed cross-price elasticities of cigarette demand by market segment detailed in ISEA simulation study conducted in 2022, *Modeling the Impacts of Tobacco Tax Increases in Montenegro: A Simulation Model* (Mugoša et al., 2023b). Additionally, as smokers' responses are influenced by their available income, the simulation integrates positive income elasticity estimates (given in Mugoša et al., 2023b).

Based on the Fiscal Strategy of Montenegro for 2024-2027 and Monstat data, the model assumes net wage growth of 13.6% in 2025 and 4% in 2026. In a period of significant wage increases, net wages are assumed to better reflect consumer income compared to GDP per capita growth rates, providing a more accurate foundation for modeling the interplay between income and tobacco consumption.

Using all these assumptions, the simulation model provides estimations of changes in cigarette quantity consumed, excise, and total tax revenue.

To estimate the effects of price changes on public health, the simulation model incorporates several key assumptions. These include a prevalence price elasticity of -0.52 and a prevalence income

elasticity of 0.32, reflecting the responsiveness of smoking prevalence to changes in price and income. Additionally, it is assumed that youth are twice as sensitive to price changes compared to adults. The model further accounts for the probability of dying prematurely from smoking-related diseases, estimated at 40%, and a 70% reduction in the risk of premature death for individuals who quit smoking. These assumptions form the basis for quantifying the public health impact of tobacco tax policy changes. They enable the estimation of reductions in smoking prevalence, decreases in the number of youth and adult smokers, and a decline in smoking-attributable deaths, effectively capturing the number of lives saved.

## Simulation Results

### Impact of excise tax change on consumption and government revenues

Using the baseline scenario input data for 2024, Table 2 illustrates the effects of excise tax changes on cigarette prices, consumption, and government revenues across three simulation scenarios for the 2025-2026 period.<sup>1</sup> The findings reveal differences in consumption reduction and revenue generation, emphasizing the effectiveness of various tax policy options.

Scenario	Year	Price/pack	Number of packs	Excise revenue	Excise + VAT revenue	Market value	Average net wage
I	2025	3.63%	4.75%	8.93%	8.85%	8.55%	13.6%
	2026	1.08%	1.43%	2.04%	2.15%	2.53%	4.0%
II	2025	5.07%	3.33%	9.75%	9.48%	8.57%	13.6%
	2026	3.77%	-1.11%	3.60%	3.38%	2.63%	4.0%
III	2025	9.91%	-1.52%	11.94%	11.09%	8.24%	13.6%
	2026	8.90%	-6.14%	5.62%	4.86%	2.21%	4.0%

Source: Own calculation

Note: The values in Table 2 represent the percentage change relative to the previous year.

**Scenario I** highlights the critical need to account for income growth and purchasing power when designing excise tax policies. In periods of significant income growth, such as Montenegro’s projected increase in 2025 with notable rises in minimum and net wages, small cigarette price hikes fail to offset the impact of rising incomes on cigarette consumption, given the positive income elasticity. Despite a 3.63% price increase in 2025, consumption is anticipated to rise due to increased cigarette affordability, while government revenues will grow by approximately 9%. Currently, no additional excise tax increases are planned for 2026, so the price increase of 1% is attributed solely to assumed increases in net-of-tax prices in line with inflation. Similar to 2025,

<sup>1</sup> The table presents a simplified simulation of brand substitution, illustrating shifts from premium to mid-price and from mid-price to economy brands. For each of the three scenarios, sensitivity analysis was conducted using different elasticity assumptions to ensure the robustness of the results against the 2024 baseline. Across all scenarios, a consistent pattern emerges, with only minor variations in the outcomes. To avoid confusion, sensitivity analysis results are not presented; however, they are available upon request.

in 2026, continued income growth and increased affordability will likely lead to higher consumption levels.

**Scenario II** further illustrates the importance of implementing larger excise tax increases during times of high-income growth. In 2026, when income growth is expected to moderate, a 3.77% price increase could lead to a decrease in consumption while still supporting positive government revenue growth.

**Scenario III**, with the highest proposed increase in the specific excise tax, represents a win-win situation for the government—leading to a consumption decrease of 1.52% in 2025 and 6.14% in 2026, alongside the highest gains in excise tax revenues (approximately 12% in 2025 and 5.62% in 2026). This analysis underscores the importance of accelerating tobacco excise tax adjustments in Montenegro, even if the EU Tobacco Products Directive’s minimum requirements have already been met.

### *Impact of price change on public health benefits*

Higher tobacco excise taxes bring significant short and long-term benefits by reducing smoking prevalence, lowering healthcare costs for treating tobacco-related diseases, and improving public health. A healthier population contributes to increased workforce productivity and economic growth, while longer lifespans and better quality of life offer substantial social and economic value. These outcomes highlight the importance of sustained tobacco control policies, which generate immediate revenue and ensure lasting health and economic stability.

**Table 3. Effects of excise tax change on the prevalence and number of premature deaths**

	Scenario 1	Scenario 2	Scenario 3
Change in price	3.63%	5.07%	9.91%
<b>Adult (population 15+)</b>			
Change in prevalence	2.53%	1.78%	-0.73%
Change in the number of smokers	4,013	2,826	-1,162
Change in the number of smoking-attributable deaths	1,124	791	-325
<b>Youth (population 0-14)</b>			
Change in prevalence	0.64%	-0.85%	-5.89%
Change in the number of smokers	225	-297	-2,052
Change in the number of smoking-attributable deaths	90	-119	-821

Source: Own calculation

Table 3 summarizes the effects of price increases across the three scenarios on changes in smoking prevalence, the number of smokers, and lives saved. In Scenario I, a price increase of 3.63% fails to offset the impact of rising incomes due to positive prevalence income elasticity, resulting in higher prevalence and consumption. In contrast, Scenarios II and III demonstrate that larger price increases effectively reduce prevalence and lead to more smokers avoiding premature deaths, both among adults and youth. For Scenario III, a price increase of 9.91% is projected to reduce prevalence of adults by 0.73%, preventing 325 premature deaths. Second part of Table 3 focuses on the youth population, showing that even smaller price increases deter initiation due to their

higher sensitivity to price changes, with the number of lives saved ranging from 119 in Scenario II to 821 in Scenario III.

### *Key Messages*

- **Substantial excise tax increases are crucial during periods of high-income growth**

With average net income expected to rise by 13.6%, a modest 2.9% increase in excise taxes will not be sufficient to counteract the income effect that drives higher cigarette consumption and prevalence. A more significant tax adjustment is needed to achieve reductions in tobacco use.

- **A 15% increase in specific excise tax creates a win-win outcome – higher revenues and fewer smoking-related diseases.**

**Government Revenue Gains:** A 15% rise in specific excise taxes is projected to boost public revenues by 12% in 2025 and nearly 6% in 2026 while simultaneously reducing cigarette consumption. This demonstrates that stronger tobacco taxation not only reduces tobacco use but also enhances government revenue streams. **Lives Saved:** Higher taxes can save lives by preventing smoking-related diseases. Approximately 325 adult smokers could quit, and 821 youth could avoid initiating smoking, significantly reducing premature deaths.

- **Prioritizing youth smoking prevention is essential.**

Tackling youth smoking is critical given the high youth smoking rates in Montenegro and the early age of smoking initiation. Early intervention is necessary to prevent lifelong addiction and reduce the likelihood of premature mortality from smoking-related illnesses.

### *Policy Recommendations*

Government of Montenegro should:

- **Implement WHO recommendations and WHO FCTC article 6**

As a signatory of the WHO Framework Convention on Tobacco Control (FCTC), the government should adopt Article 6 measures to ensure tax increases effectively more than offset inflation and income growth, reducing tobacco consumption. The same recommendation is strongly emphasized in the 2021 *WHO technical manual on tobacco tax policy and administration*.

- **Maintain and expand excise tax increases**

Continue increasing specific excise taxes beyond the minimum threshold established by the EU Directive to reduce consumption further. Proactively align with forthcoming EU Directive revisions that aim to raise minimum tax thresholds and address affordability considerations in policymaking.

- **Allocate some tobacco excise revenues to public health**

Allocate funds from tobacco excise taxes to support prevention and control programs designed to reduce tobacco use and its associated health burdens.

- **Enhance non-price tobacco control measures**

Strengthen and enforce non-price measures such as smoke-free policies, standardized packaging, marketing restrictions, and age restrictions to complement taxation and amplify reductions in tobacco use.

- **Adjust taxation on other tobacco products**

Regularly review and adjust excise tax rates on heated tobacco and other novel tobacco products to account for inflation and purchasing power changes, addressing their increasing popularity and affordability.

- **Raise public awareness of the health risks of tobacco use**

Launch targeted awareness campaigns focusing on the health risks of tobacco use, particularly among youth, to discourage smoking initiation and promote cessation.

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