

## **POLICY BRIEF**

### **TOBACCO TAX MODELING: EVIDENCE FROM NORTH MACEDONIA**

#### **Tobacco Taxation: Good for both population health and the government budget in North Macedonia**

Tobacco smoking prevalence in North Macedonia is extremely high, with the adult prevalence of 48.4 percent in 2019 surpassing smoking rates in Southeastern Europe (37.6 percent), the European Union (18.4 percent) and globally (22.3 percent). In North Macedonia, a substantial number of smokers begin smoking at a very early age, with 51.3 percent taking up smoking between the ages of 18 and 24. Moreover, a significant portion (44.4 percent) of current smokers consume more than 20 cigarettes per day. These alarming trends indicate the pressing need for comprehensive tobacco control measures and targeted interventions to reduce smoking and its associated harms in North Macedonia.

The average price range for a pack of cigarettes in North Macedonia in 2022 was relatively low, ranging from USD 1.82 to USD 2.77 while the average monthly net wage was USD 572.11. In addition, North Macedonia has the most affordable cigarettes in the region, with a paltry 0.03 percent of average GDP per capita required to purchase 100 packs of the most sold cigarettes in the country (The World Bank 2023; State Statistical Office data 2023). This suggests that cigarettes are very affordable in North Macedonia. In addition, North Macedonia has a low tobacco tax burden: excise tax as a percentage of the average price of cigarettes in North Macedonia in 2023 is 65.6 percent, demonstrating that there is significant space for tax policy improvement.

Tobacco taxation is a proven and effective policy tool for reducing smoking prevalence and improving public health. It is recognized as one of the core interventions for tobacco demand reduction by the World Health Organization's Framework Convention on Tobacco Control (WHO FCTC). Implementing tobacco taxation not only helps decrease tobacco consumption but also generates additional tax revenue, making it a win-win policy approach. Tobacco excise tax increases that increase prices reduce the affordability and appeal of smoking (National Institutes of Health, National Cancer Institute and World Health Organization, 2016). A substantial body of evidence demonstrates that higher tobacco taxes lead to decreased tobacco consumption. For example, a 10-percent price increase can result in a four- to eight-percent reduction in consumption. Excise taxes also generate significant revenue for governments, which can be used to support tobacco control and public health initiatives.

This policy brief is based on a comprehensive study that examines the impacts of potential tobacco tax excise increases on various aspects related to cigarette consumption, including prices, government revenues, and public health outcomes. By analyzing the effects of these

tax increases, this study aims to provide evidence-based insights for policy makers in formulating effective tobacco tax policies.

## TOBACCO TAX MODELING: FISCAL AND HEALTH IMPLICATIONS

The calculations and assumptions in this brief are from the World Health Organization’s Tobacco Tax Simulation Model (WHO TaXSiM). This study assumes three scenarios of specific excise increases (10 percent, 30 percent, and 50 percent). For each scenario, three models are estimated, each considering different assumptions about the consumers’ response to the price change, which is a central component of this modeling. Each of the models and assumptions are thoroughly elaborated in the full report.<sup>1</sup>

### RESULTS

- ❖ Increases in excise revenues due to tobacco tax increases vary depending on assumptions, ranging from 5.23 percent to 22.44 percent, while the increase in total tax revenues varies from 4.86 percent to 21.45 percent, based on estimated price and income elasticity of tobacco consumption.
- ❖ Increasing tobacco excise taxes generates noticeable health benefits by reducing the number of smoking-related deaths.
- ❖ Larger increases in excise tax correspond to more significant health benefits.
- ❖ The results highlight that an increase in excise tax reduces smoking intensity.

Increasing the excise tax on tobacco has a positive impact on revenue generation, suggesting the potential for further raising the excise tax to improve revenue gains. Because the estimated impact relies on the presumed reaction to price, we considered three elasticity scenarios (Model 1 with the lowest elasticities and Model 2 with the highest elasticities).

**Table 1.** Estimated effects of excise tax increases on government revenue (% change)

Scenario 1: 10% specific excise increase				Scenario 2: 30% specific excise increase			Scenario 3: 50% specific excise increase		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Year	Total excise revenue			Total excise revenue			Total excise revenue		
2024	8.20%	5.28%	6.49%	16.81%	6.51%	11.92%	22.44%	2.72%	13.50%
2025	8.18%	5.23%	6.47%	16.48%	5.91%	11.50%	21.45%	1.54%	12.39%
	Total tax revenue			Total tax revenue			Total tax revenue		
2024	7.80%	4.89%	6.12%	15.43%	5.30%	10.64%	20.26%	1.01%	11.55%
2025	7.80%	4.86%	6.11%	15.34%	4.90%	10.43%	19.87%	0.25%	10.95%

Source: Authors’ calculations

<sup>1</sup> Mijovic Spasova, T., Mijovic Hristovska, B., Tashevskaja, B., & Trpkova-Nestorovska, M. (2023). *Tobacco tax modeling: Evidence from North Macedonia*. Analytica, Skopje, North Macedonia.

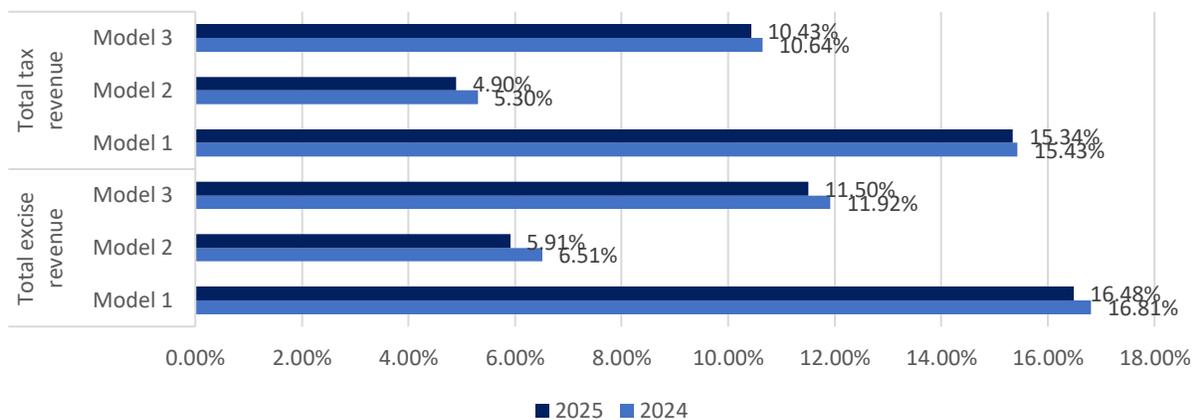
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*Implementing specific excise increases on tobacco products can lead to significant growth in excise revenues, ranging from 5.23 percent – 22.44 percent.*

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The implementation of a 30-percent specific excise tax increase (Figure 1) results in a range of increases in total tax revenue, varying from 4.90 percent to 15.34 percent. Similarly, the increase in total excise revenue also shows a range, from 5.91 percent to 16.81 percent.

**Figure 1.** Impact of 30% specific excise increase (Scenario 2) on revenues (% change)



Increasing the excise tax has evident health benefits by reducing smoking-related deaths and smoking intensity across various models and scenarios.

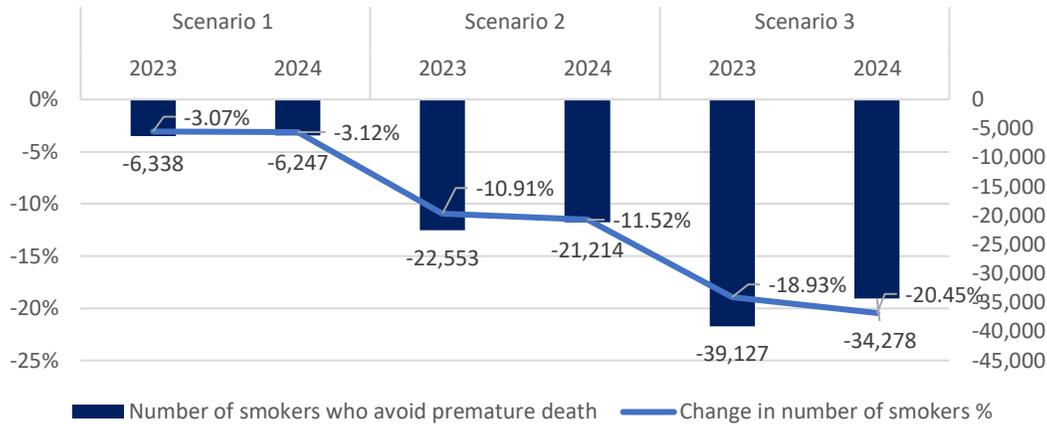
A larger excise tax increase leads to more significant health benefits, with Model 2 showing the greatest impact in terms of smokers avoiding premature death, thanks to a stronger response in smoking prevalence to price changes. Model 2 incorporates higher tobacco price elasticities and higher prevalence elasticity, rendering consumers considerably more responsive to changes in price. This heightened responsiveness signifies that increased tobacco prices can potentially induce a reduction in smoking rates, consequently mitigating the incidence of smoking-related diseases and reducing the number of smoking-related deaths. In addition, Model 2 shows that even with a high consumer response to price increase, there is a positive impact on revenues even with a significant 50% tax increase. Moreover, this reduction in smoking not only alleviates the financial burden associated with treating patients afflicted with smoking-related illnesses but also serves to curtail premature mortality rates.

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*Increasing the tax burden on cigarettes yields significant benefits for public health*

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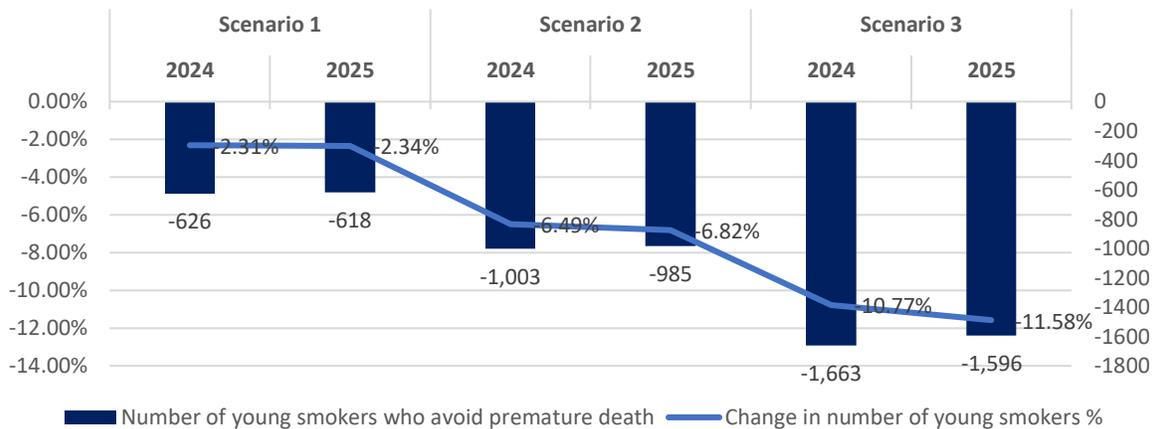
**Figure 2. Effects of excise tax changes on the number of smokers who avoid premature death (Model 2)**



\*Scenario 1 - 10% specific excise increase; \*\*Scenario 2 - 30% specific excise increase; \*\*\*Scenario 3 - 50% specific excise increase

Source: Authors' calculations

**Figure 3. Effects of excise tax changes on the number of youth smokers who avoid premature death**



Source: Authors' calculations

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*Increasing tobacco taxes can reduce premature smoking-related deaths among youth who are deterred from starting smoking in the first place.*

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## **CONCLUSION & RECOMMENDATIONS FOR OPTIMIZING TOBACCO TAXATION FOR PUBLIC HEALTH AND FISCAL BENEFIT**

- ❖ Implementing improved tobacco taxation policies, particularly excise tax increases, plays a vital role in improving public health by reducing smoking-related premature deaths and increasing government revenues from excise and other indirect taxes.
- ❖ Adopting these policies aligns with North Macedonia's active process of European Union (EU) integration by moving toward tobacco tax minimum benchmarks required for accession, a significant step towards achieving the country's EU-related objectives.
- ❖ Implementing a steady increase in the specific excise tax and establishing a timeline to reach the required level set by the EU can effectively contribute to aligning tobacco taxation with international standards enshrined in WHO best practices and the WHO Framework Convention for Tobacco Control to which North Macedonia is a Party.
- ❖ Strengthening non-price tobacco control policies, such as reinstating a ban on smoking in enclosed public spaces, can have a significant impact on reducing both first-hand and second-hand smoking, and typically amplifies the positive public health effects of increased tobacco excise taxes.
- ❖ Raising awareness among all population groups, particularly youth, through comprehensive public and education campaigns that highlight the health risks associated with tobacco use can contribute to reducing smoking prevalence.

### **Acknowledgments**

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