



Impacts of Tobacco Excise Increases on Cigarette Consumption and Government Revenues in Romania

Key messages:

- **Cigarettes have become increasingly more affordable recently.** Household income in Romania has risen almost two times faster than cigarette prices over the last decade. The average annual income increase has been approximately 10 percent, much higher than the average annual increase in cigarette prices, thus making cigarettes more affordable in relative terms. This resulted in an increase in smoking prevalence at the household level from almost 16 percent in 2015 to more than 19 percent in 2021.
- **Low-income households are more sensitive to both price and income increases.** The reduction in consumption due to a price increase differs depending on the smoker's income group. Cigarette excise tax increases have a greater impact on lower-income households, in that they are more likely to quit or to consume less. Similarly, income increases lead to greater increases in cigarette consumption in lower-income households.
- **Increasing excise taxes on tobacco in Romania can help reduce the budget deficit.** Regardless of whether cigarette producers choose to transfer the full increase in tax to the price of cigarettes (full pass through), to decrease their profit margin by absorbing some of the tax (under-shifting), or to increase their profit margin by raising the price more than the tax increase (over-shifting), cigarette excise tax increases will have a positive impact on budget revenues.
- **Smoking households spent 17 percent of their money on cigarettes on average.** In 2015–2021, average cigarette expenses represented 17 percent of a smoking household's total monthly expenses, imposing an enormous financial burden. This rate is one of the highest in the world.
- **Increasing tobacco excise taxes has both a progressive character and a redistributive effect.** The greatest share of the financial burden of an excise tax increase would be borne by high-income households. In the case of low-income households, smokers are more likely to quit or reduce consumption, and either choice would free up part of the family budget so it can be allocated towards more productive purposes like health or education.
- ***For a reduction in cigarette consumption, prices must increase more than the annual average increase in income.***

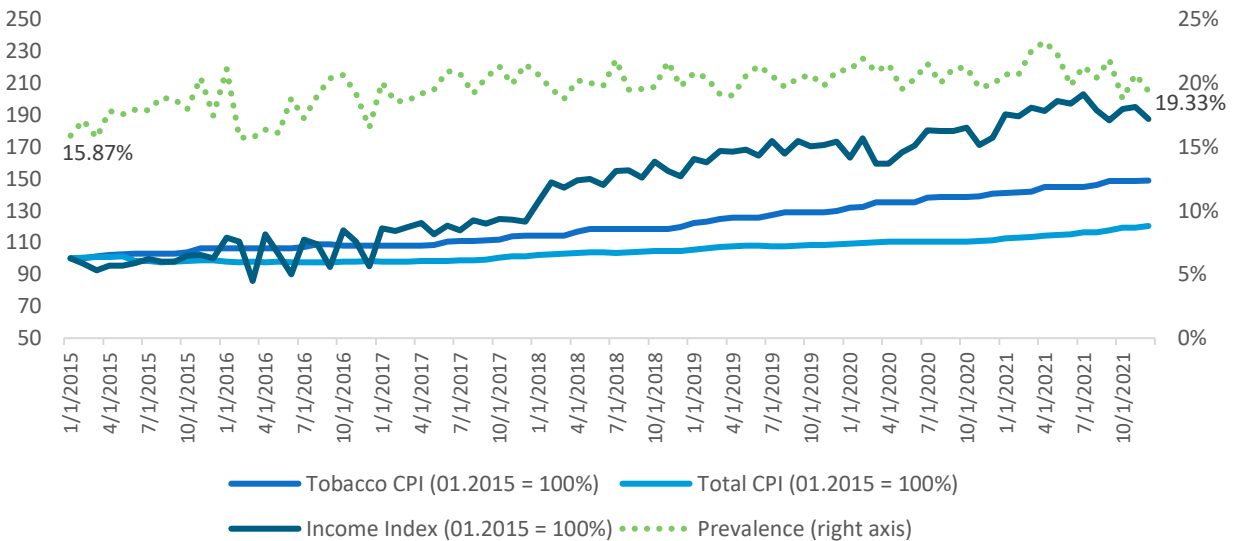
Context and Quick Overview

“The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing over 8 million people a year around the world. More than 7 million of those deaths are the result of direct tobacco use while around 1.3 million are the result of non-smokers being exposed to second-hand smoke.”¹

Consumption of tobacco products in Romania is higher than the EU average and imposes a significant financial burden on smoking households as well as negative externalities for society as a whole, because the economic costs of smoking far outweigh any tax revenues and other positive effects on the economy.

The main objective of this research is to estimate the price and income elasticity of demand for cigarettes. This information provides policy makers with essential insights, enabling them to evaluate the potential impact of adjusting cigarette taxes on tobacco consumption and on government revenues. The study uses a data set provided by the National Institute of Statistics gathered from Household Budget Surveys (HBS) for the period of 2015 to 2021. The HBS is an annual survey that contains detailed information about expenditure, income, and other socioeconomic and demographic details about households and their members.

Figure 1. Income, inflation, and tobacco consumption, 2015–2021

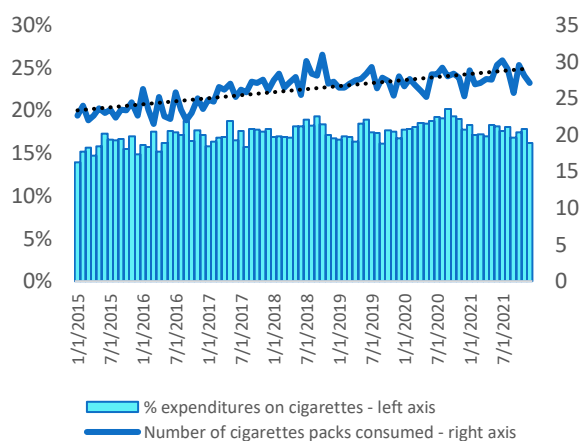


Source: National Institute of Statistics and HBS data

¹ World Health Organization. (2023). WHO report on the global tobacco epidemic, 2023: protect people from tobacco smoke.

In recent years, income increases have outpaced cigarette price increases. The cumulative increase in the tobacco consumer price index (CPI) was around 50 percent, while the increase in average income was approximately 90 percent. Therefore, despite price increases, cigarettes have actually become more affordable for most Romanians. The result of this "cheapening" of cigarettes in relative terms translates to an increase in prevalence rates, from a little less than 16 percent to more than 19 percent in the analyzed period.

Figure 2. Expenditure on cigarettes as share of total household expenditure and number of cigarette packs consumed



Source: Authors' calculations based on NIS and HBS data

The number of cigarette packs consumed monthly on average per household is slightly increasing (the blue line represented on the right vertical axis in Figure 2). This is happening partly because household income and spending increased significantly over this seven-year period at a much faster rate than the price of cigarettes. For example, with the same allocation

of 16 percent of household total spending, approximately 27 packs of cigarettes could be consumed per month at the end of 2021, compared to 22 packs of cigarettes in March 2015. In the 2015 to 2021 period, average cigarette expenses represented 17 percent of the total monthly expenses of a smoking household, which represent an enormous financial burden.

Methodology

When considering tobacco consumption, a significant portion of the entire population is composed of non-smokers. This implies that the distribution has a discrete component and a continuous component. As such, when considering market prices, their financial limits, and the nature of nicotine addiction, individuals are faced with two primary choices:

- 1) whether to smoke; and
- 2) if they choose to smoke, how much to consume.

Accordingly, this research uses a two-part econometric model to estimate elasticities. The first part estimates the prevalence, or the decision to smoke or not. And the second part, which applies only to those who choose to smoke, estimates the intensity of the phenomenon (how much they decided to consume, depending on their income and the price of cigarettes).

After estimating the two parts, the model aggregates the results and obtains the price and income elasticity of demand at the level of the entire population. Next, the population is divided into three equal groups (low, medium, and high income), and for each income group, the elasticities are estimated according to price and

income. In this way, one can observe the different impact that a price increase has on the consumption of each income category.

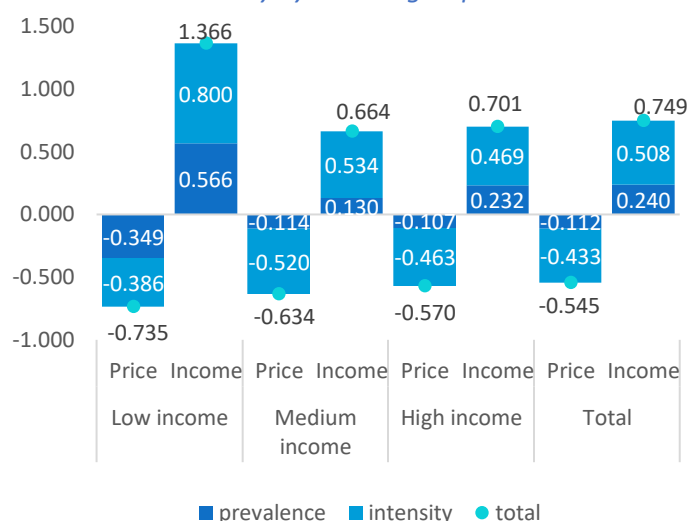
Results

The total price elasticity—the sum of prevalence elasticity and intensity elasticity—is **-0.545**, while the income elasticity is **0.749**. This means that a price increase of 10 percent would lead to a consumption reduction of 5.45 percent, though this only holds true if income stays the same. Considering the historical average of income increases between 2015 and 2021 of approximately 10 percent, a price increase of 10 percent would actually still lead to an increase in cigarette consumption.

When dividing the population into three income groups and estimating the price and income elasticities for each category, there is significant variation. Total price elasticity is the highest for low-income households at -0.735, which means that a 10-percent price increase leads to a decrease in consumption by 7.35 percent. Price elasticity is the lowest in the high-income group at -0.570, with the effect of price on prevalence being almost insignificant, meaning that most of

the increase in price will lead to a reduction in consumption and not in smoking cessation.

Figure 3. Prevalence, intensity, and total elasticity by income group



Source: Authors' calculation based on elasticity estimates

To simulate the impact of an excise increase on consumption and government revenues, two scenarios are presented in Table 1 below: the scenarios assume a 10-percent and a 20-percent price increase, while maintaining the historical 2015-2021 average income increase of 10

Table 1. Tobacco consumption and tax revenue simulation with 5%, 10%, and 20% price increase maintaining the historical 10% income increase

Price increase 10%	Consumption (mil. packs)			Government revenues (mil. RON)		
	Baseline	Scenario	Change	Baseline	Scenario	Change
Income increase 10%						
Low - income	81	85	5.3%	1,224	1,418	15.8%
Middle - income	295	295	-0.1%	4,484	4,927	9.9%
High - income	651	657	0.9%	9,898	10,987	11.0%
Total	1,026.5	1,036.4	1.0%	15,605.9	17,331.1	11.1%
Price increase 20%	Consumption (mil packs)			Government revenues (mil RON)		
	Baseline	Scenario	Change	Baseline	Scenario	Change
Income increase 10%						
Low - income	81	78	-3.0%	1,224	1,424	16.3%
Middle - income	295	275	-6.9%	4,484	5,011	11.7%
High - income	651	617	-5.2%	9,898	11,261	13.8%
Total	1,026.5	970.0	-5.5%	15,605.9	17,695.7	13.4%



percent. The table presents both the overall impact as well as the impact on each income group (low, medium, high). An additional simulation was made in order to find what would be the necessary increase in price in order for the consumption not to increase, while maintaining the historical increase of 10 percent in income. For this condition to be satisfied, the prices of cigarettes should increase by 11.5 percent. ***Thus, to achieve a reduction in consumption, the prices of cigarettes must increase by more than 11.5 percent, if annual average income continues to increase at the recent historical pace (2015–2021).***

Policy Recommendations

- Considering Romania’s vulnerabilities regarding public health issues (high incidence of smoking and the resulting cancers and cardiovascular and respiratory diseases) and seeking a better alignment of the national targets with the European Union targets regarding the prevention and reduction of the occurrence of cancer, especially lung cancer, the Romanian government should set, among its main objectives, the significant reduction of cigarette consumption.

The increase in excise taxes, and implicitly in the price of cigarettes, is a win-win situation, which would result in both a decrease in consumption and an increase in budget revenues. However, given the recent historical average increases in income of approximately 10 percent per year from 2015 until 2021, any increase in the price of a cigarette packs lower than 11.5 percent would still lead to an increase in consumption.

- Currently, heated tobacco products—which heat tobacco to create an aerosol that is inhaled—benefit from much looser regulation than cigarettes (e.g., indoor smoking bans, marketing restrictions, package warning labels and images, etc.), and thus the same people who are not allowed to smoke cigarettes indoors often smoke heated tobacco products, diminishing the effectiveness of regulations against tobacco and forcing non-smokers to endure harmful second-hand aerosol. To prevent these harms, heated tobacco products should be subject to the same regulations and taxation as cigarettes.

Disclaimer

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