Economics For Health

iSEA INSTITUTE FOR SOCIO-ECONOMIC ANALYSIS

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HOW CONSUMERS RESPOND TO TOBACCO PRICE CHANGES: EVIDENCE FROM CIGARETTES AND HEATED TOBACCO PRODUCTS IN MONTENEGRO

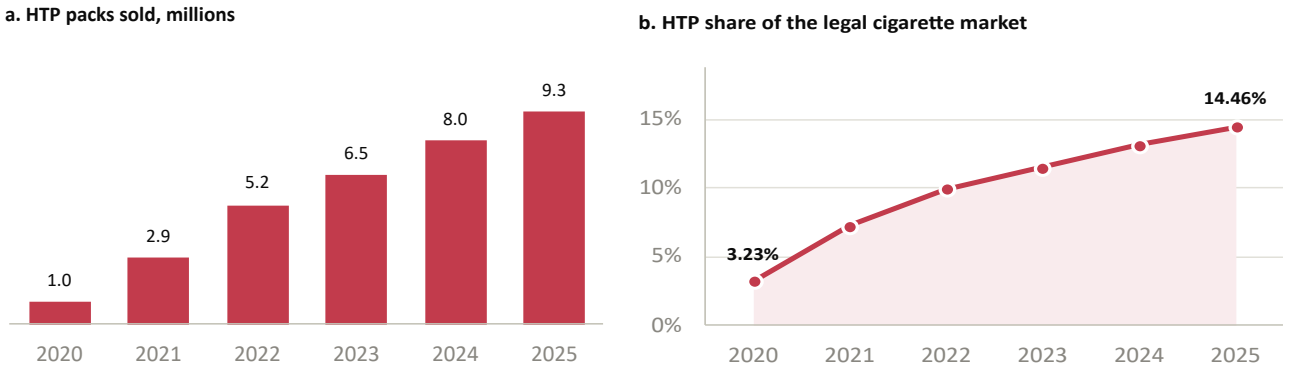
KEY FINDINGS

- **Higher prices reduce the consumption of both cigarettes and heated tobacco products (HTPs), but HTP users react more strongly to price changes.** In the long run, a 10-percent increase in HTP prices reduces HTP consumption by 12.7 to 14.0 percent, depending on the estimation method, whereas a 10-percent increase in cigarette prices reduces cigarette consumption by 7.9 percent.
- **Some consumers switch between the two products, but mostly in one direction.** When cigarette prices rise by 10 percent, HTP consumption increases by 7.1 percent; when HTP prices rise by 10 percent, cigarette consumption increases by only 0.8 percent.
- **HTP prices follow cigarette prices.** Over time, HTP prices adjust to changes in cigarette prices. A single manufacturer, which also sells cigarettes, holds 96 percent of the HTP market in Montenegro.
- **Raising cigarette taxes without adequate increases in HTP taxes will partly shift consumption towards HTPs rather than reduce overall tobacco use.** Higher HTP prices, by contrast, reduce HTP consumption and lead very few users to switch or return to cigarettes.

BACKGROUND INFORMATION

Although cigarettes remain the dominant tobacco product, HTPs have diversified Montenegro's tobacco market since entering in late 2019. HTPs are classified as smokeless tobacco and are therefore subject to less comprehensive regulation than cigarettes, including the absence of a ban on their use in enclosed public spaces. HTP sales increased more than ninefold between 2020 and 2025, and their share of the legal cigarette market rose from 3.23 percent to 14.46 percent over the same period (Figure 1).

Figure 1. HTP packs sold and share of the legal cigarette market, 2020–2025

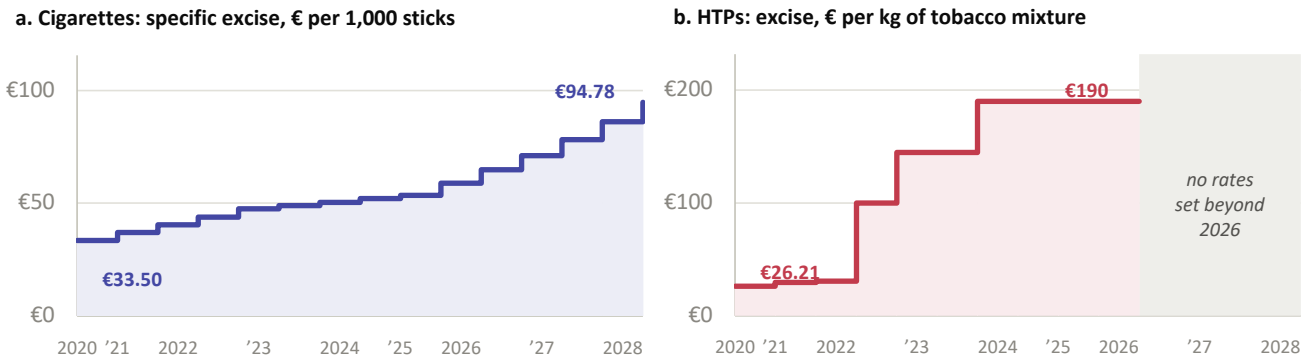


Source: Ministry of Finance, Directorate for Issuing Permits for the Production, Processing, and Trade of Tobacco Products

Montenegro has pursued a sustained strategy of strengthening cigarette taxation since 2010 and has met the European Union Tobacco Products Directive minimum excise requirements in 2025 (specific excise of €53.2 per 1,000 cigarettes, combined with the ad valorem excise of 24.5 percent of the retail price). The amended Law on Excise Tax, in effect since January 2026, sets a predefined semi-annual schedule under which the specific excise rises from €58.85 to €94.78 per 1,000 cigarettes by July 2028, a cumulative increase of approximately 61 percent, while the ad valorem rate remains at 24.5 percent.

The HTP excise has also increased substantially, from €26.21 per kilogram of tobacco mixture in 2020 to €190 per kilogram in 2024 (or, from €0.14 to €1.01 per pack). However, it has not been raised since, and, unlike in the case of cigarettes, no multi-year schedule of additional increases has been adopted. In 2025, excise accounted for 31.5 percent of the HTP retail price, compared with 59 percent for cigarettes (Figure 2).

Figure 2. Excise rates on cigarettes and HTPs, 2020–2028



Note: Semi-annual adjustments; no HTP rates are set beyond 2026. Source: Law on Excise Taxes.

Tax pass-through

Only €0.26 of each €1 increase in the HTP excise is passed through to HTP retail prices. HTP prices respond more strongly to cigarette taxation: when the cigarette excise is raised, the industry increases HTP prices alongside cigarette prices, so that about €0.90 of each €1 increase in the cigarette excise is indirectly passed through to HTP retail prices.

Market structure

31 HTP brands were active at the end of 2025; one manufacturer—which also supplies cigarettes—holds 96 percent of the HTP market.

Rapid growth in HTP use

Adult prevalence rose from 0.2 percent in 2019 to 3.9 percent in 2022; past-year use among students rose from 2.5 percent (2019) to 13.12 percent (2024).

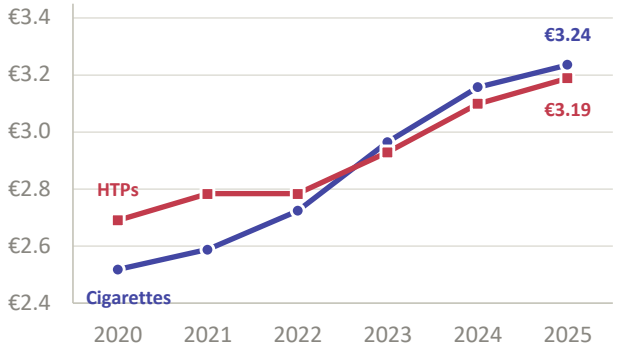
Sources: Tobacco Agency; STC-SEE 2019 and STC-MNE 2022 surveys; ESPAD 2019 and 2024.

RESULTS

How Cigarette and HTP Prices Move Together

HTPs were initially more expensive than cigarettes, but the price gap has narrowed steadily over time; in annual nominal terms, HTPs have been cheaper than cigarettes since 2023 (Figure 3). In the long-run, the two prices move together, and when they drift apart, it is mainly HTP prices that adjust, closing about 19 percent of the gap each month since mid-2022. Despite successive increases, cigarette prices remain low by European standards: the weighted average price of cigarettes (WAPC) in Montenegro in 2025 was €3.23 per pack, or €4.84 per pack when adjusted for differences in price levels using the price level index (PLI), compared with €6.51 in the EU (Euromonitor International, 2025).

Figure 3. Nominal weighted average price per pack, 2020–2025

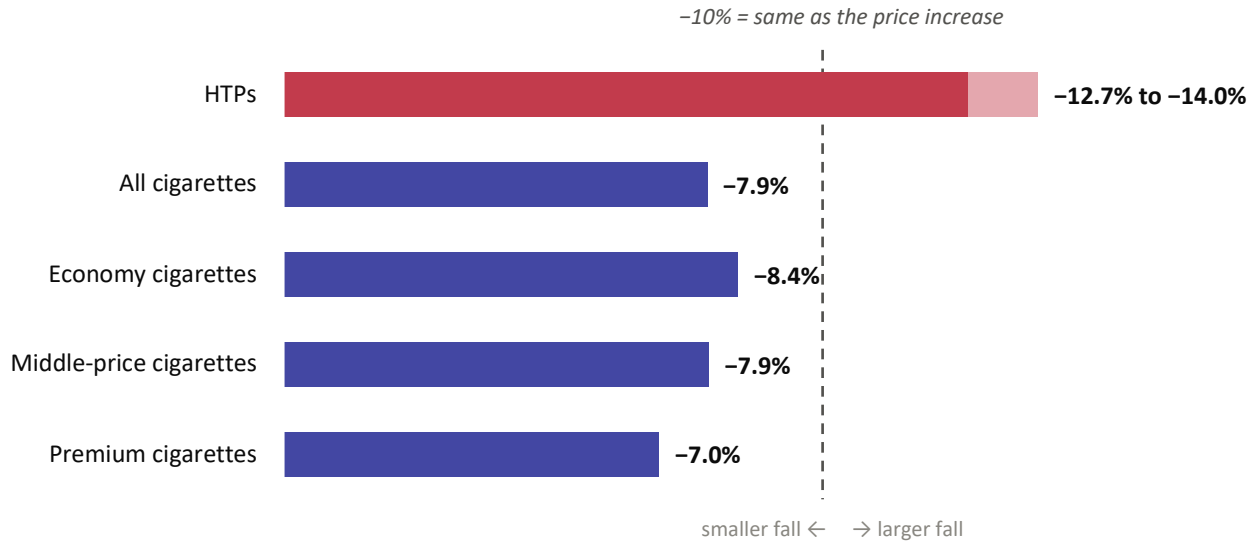


Source: Authors' calculations based on Tobacco Agency data.

How Consumption Responds to Price

Higher prices reduce the consumption of both products, but HTP users react more strongly (Figure 4). In the long-run, a 10-percent increase in HTP prices reduces HTP consumption by 12.7 to 14.0 percent, depending on the estimation method used. The same increase in cigarette prices reduces cigarette consumption by 7.9 percent overall, and by 7.0 to 8.4 percent across each price tier (economy, middle-price, and premium brands). The adjustment process is relatively rapid: half of the long-run response to a price change occurs within less than one month for cigarettes and 1.79 months for HTPs.

Figure 4. Long-run change in consumption after a 10-percent price increase



Source: Authors' estimates.
Notes: The HTP bar shows the range of estimates across estimation methods. A decrease of more than 10 percent means consumption drops by more than the price rises. All estimates are statistically significant at the 1% level.

Switching Between Products

Higher cigarette prices lead some smokers to switch to HTPs, but higher HTP prices lead very few HTP users to switch to cigarettes (Figure 5). Most switching takes place within the cigarette market, between neighboring price segments: for example, a 10-percent price increase for middle-price cigarettes raises demand for economy cigarettes by 3.55 percent (Table 1). Most of the drop in HTP consumption that follows an HTP price increase is, therefore, not replaced by higher cigarette consumption.

Figure 5. Change in demand for one product after a 10-percent price increase for the other

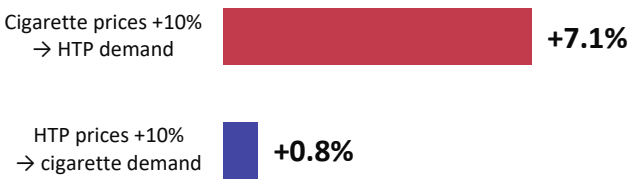


Table 1. Price responsiveness by market segment: Percent change in demand after a 1% price increase

Demand / Price change	Economy cigarettes	Middle cigarettes	Premium cigarettes	HTPs
Economy cigarettes	**−0.844***** (0.255)	0.355*** (0.108)	0.193 (0.156)	0.082 (0.117)
Middle cigarettes	0.151*** (0.046)	**−0.790***** (0.240)	0.194*** (0.056)	0.079*** (0.022)
Premium cigarettes	0.150 (0.145)	0.353** (0.187)	**−0.698***** (0.201)	0.081*** (0.018)
HTPs	0.157 (0.147)	0.354*** (0.108)	0.199*** (0.057)	**−1.268***** (0.348)

How to read: Each cell shows the percent change in demand for the product in the row when the price of the product in the column rises by one percent. Shaded cells show the response to a product's own price; the other cells show switching between products.
Source: Authors' estimates.
Notes: *** p < 0.01, ** p < 0.05. Standard errors in parentheses.

RECOMMENDATIONS

Government should:

- **Adopt a market-wide approach to tobacco taxation:** Design tobacco taxation from the perspective of the entire tobacco market rather than treating cigarettes and HTPs as independent product categories. Because consumers substitute between products, tax changes affecting one category also influence demand for the other, and tax policies that favor certain products give manufacturers scope to use pricing strategies that encourage substitution, which may contribute to an increase in overall consumption.
- **Continue increasing HTP excise taxes:** Continue increasing HTP excise taxes as part of the tobacco control strategy, with annual increases that account for both inflation and real income growth—and, ideally, exceed their combined growth—in order to reduce HTP affordability. Because HTP consumption responds strongly to price, tax increases can effectively reduce HTP consumption without substantial switching to cigarettes.
- **Introduce a multi-year HTP excise schedule:** Along with the cigarette excise calendar, introduce a multi-year HTP excise schedule, narrowing the remaining tax gap with cigarettes (27.5 percentage points in 2025). Estimation results imply that policies that raise HTP prices would reduce HTP consumption without unintended consequences, such as increased cigarette consumption.
- **Extend smoke-free legislation to HTPs:** Apply the indoor-use restrictions that already cover cigarettes to HTPs. The current exemption creates a non-price competitive advantage that may reinforce price-driven substitution and threaten public health gains.
- **Strengthen market surveillance and data collection:** Expand administrative monitoring to all tobacco products and complement it with periodic consumer surveys to track dual use, switching behavior, and responses across population groups.

Government should:

Accompany the planned cigarette tax increases with a predictable HTP excise path and consistent regulation of both products, to lower total tobacco consumption.

Expected result:

A coordinated tax and regulatory approach would make all tobacco products less affordable over time, reduce overall consumption, and limit the scope for price-driven switching. The strongest public-health outcome comes from reducing use across the market, rather than making one tobacco product the cheaper alternative.

Methodology notes: The analysis uses monthly administrative data from the Ministry of Finance Directorate for Issuing Permits for the Production, Processing, and Trade of Tobacco Products on tobacco brands, prices, and sales from 2020 to 2025 (123 products, 6,975 observations). It estimates long-run responses to own-price changes and how consumers switch among economy, middle, and premium cigarettes and HTPs. Long-run responses to price were estimated with a pooled mean group panel error-correction model, and switching between products was estimated with a nested-logit demand model. The estimates account for product differentiation, common manufacturers, and the changing illicit market.

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