Elasticity of tobacco products in Croatia

Accelerating Progress on Effective Tax Policies in Low-and-Middle -Income Countries
Supply of tobacco products
Croatian tobacco market (2017)

- British American Tobacco; 58.5%
- Phillip Morris International; 34.5%
- Japan Tobacco International; 4.8%
- Imperial Tobacco Group; 2.2%
Total value of tobacco export and import (EUR), 2010-2016

- reduction of tobacco production (surfaces under tobacco and tobacco yields)
- since 2013 intensive harmonization of excise duties with European excise system

0.3% GDP
Imports of cigarettes in Croatia by country of origin (percentage shares, %) 2010-2016

- Major tobacco importers: Philip Morris International, Japan Tobacco International, Imperial Tobacco Group and British American Tobacco
Exports of cigarettes in Croatia by country of destination (percentage shares, %) 2010-2016

- Major tobacco exporter: Tvornica duhana Rovinj
Demand for tobacco products
in 2013 absolute number of smokers decreased under 1 million.
Youth tobacco use

13-15 years age group

- 47.2% have used tobacco products at least once
- 15.9% currently use tobacco products
- 56.9% were not prevented from buying cigarettes at the store because of their age, despite the legal obligation

students who turn 16 in the calendar year of the survey

- 32% have tried cigarettes at the age of 13 or younger
- 33% have used cigarettes during the last 30 days
- 23% are daily smokers
- 73% state that cigarettes are easy or very easy to obtain

The increase in the price of tobacco products should make tobacco products less affordable and less accessible for young people!
Consumption and price of cigarettes in Croatia

The average weighted price of cigarette pack (deflated by the global CPI, EUR)

- Cigarette consumption
- Price of cigarette

Quantity of cigarettes sold (in 000 packs of 20 cigarettes)

• cigarettes are the main tobacco product used in Croatia
• rising trends in value of cigarette sales with descending trends in volume of sales at the same time
• increase in value of retail sale of fine-cut smoking tobacco in recent years
Elasticity of tobacco products

FINDING: In Croatia, cigarette demand is price sensitive!
Aggregate time-series analysis

\[ \text{cons}_a p_t = b_0 + b_1 \text{rcpi}_t + b_2 \text{rb}_wag_t + b_3 \text{tpi}_t + \varepsilon_t \]

Data variables are as follows:

\( \text{cons}_a p_t \) = consumption of cigarettes in year \( t \) per adult

\( \text{rcpi}_t \) = real tobacco consumer price index in year \( t \);

\( \text{rb}_wag_t \) = real gross wages per person employed in EUR in year \( t \);

\( \text{TPI}_t \) = index of smoking restrictions in year \( t \);

\( \varepsilon_t \) = error term.
Aggregate time-series analysis

- Increase in price by 10% would lead to a reduction in long-term quantity demanded for cigarettes by 6.1%

The retail price of the best-selling cigarette brand is 3.6 EUR.

The annual cigarette consumption is 1,737 cigarettes/adult.

Fiscal revenues: + 129.1 million EUR (ED 118.8 million EUR + VAT 10.3 million EUR)
Limitations:

- Number of observations
- Multicollinearity problem
- Issue of illegal cigarettes sales
HBS data analysis

- **increase in price by 10% would lead to a reduction in quantity demanded for cigarettes by 10.7%**
- **increase of 10% of the income would raise cigarette consumption by 9.1%**

the weighted average retail price of the cigarette 3.19 EUR

AND

gross domestic product (GDP) ↑ 2.8%

the annual cigarette consumption ↓ -25.5 million packs (-5.44%)

fiscal tax revenues ↑ +26.6 million EUR (+3.42%)

(ED 24.5 million EUR + VAT 2.1 million EUR)
Limitations:

- Price elasticity is estimated only for cigarettes and not for other tobacco products.

- This study uses data on household level, while it would be more relevant to use individual level data.

- Our data time-frame was limited to only three years (2010, 2011 and 2014).