Smoking prevalence in Croatia remains among the highest in Europe. Comprehensive tobacco control policies that include higher tobacco taxes and prices as well as clean indoor air laws and bans on tobacco marketing are effective in both, preventing youth from starting to smoke and encouraging smokers to quit. Higher tobacco taxes through higher tobacco prices have been shown through many studies to reduce tobacco consumption. Therefore, tax policy that significantly increases the tax burden on tobacco products is the most effective tool for reducing smoking rates. In Croatia, tobacco excise duties are 60% of the retail price, of which 34% is ad valorem excise, while the share of specific excise is 26%.

Research carried out by a team of the Faculty of Economics Split has shown that a 10% increase in price of cigarettes would result in a 10.7% decrease in the cigarette demand. Furthermore, estimated income elasticity shows that a 10% income increase would raise cigarette consumption by 9.1%.

For example, if we assume that in the next year Croatian gross domestic product (GDP) will increase by 2.8% and that excise taxes will increase by 10% this would lead to 5.44% decrease in cigarette consumption. At the same time, total tax revenues would increase by 3.42%.

These findings provide opportunities to improve tax policy, primarily by further increasing excise duties on tobacco products, which should ultimately result in increased tax revenues, healthcare savings, and improving the health of the population.

The prevalence of smoking in the Republic of Croatia shows notable decrease only in the last few years. In the period from 2002 to 2017, the average proportion of smokers in the adult population was about one-third, from the highest 37.0% in 2005 to the lowest 27.7% in 2016, with the number of female smokers decreasing faster than the number of male smokers.

According to recent results of the European School Survey Project on Alcohol and Other Drugs (ESPAD) research in high schools in the Republic of Croatia, Croatian students smoke more than their European colleagues, as 33.1% of them are current smokers (they have smoked in the last 30 days) compared to 21% of current smokers in other countries. Despite the legal ban on the sale of tobacco and related products to persons under the age of 18, students state that cigarettes are easy or very easy to obtain (72.5%)v. Therefore, the increase in the price of tobacco products should make them less affordable and accessible for young people and that should have a positive impact on reducing the number of adolescent smokers.
The trend in cigarette consumption (expressed in the number of cigarette packs sold) and the deflated cigarette price is shown in Graph 1. The average retail cigarette price has been increasing steadily from 2002 to 2016. The graph shows that after 2008, the curve takes a negative slope, which means that the rise in the price of a cigarette is followed by a fall in the number of cigarettes demanded. The main reason for rising prices in the observed period are changes in the taxation policy, i.e. harmonization of taxes and excise duties with the EU regulations.

Since smoking prevalence is slowly decreasing, the volume of sales also shows a declining trend due to rising cigarette prices. However, at the same time there has been a significant increase in the value of retail tobacco products due to increased prices. (Graph 2).

**TAXATION OF TOBacco PRODUCTS**

The prevalence of smoking in the Republic of Croatia shows notable decrease only in the last few years. In the period from 2002 to 2017, the average proportion of smokers in the adult population was about one-third, from the highest 37.0% in 2005 to the lowest 27.7% in 2016, with the number of female smokers decreasing faster than the number of male smokers.

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**Table 1. Structure of the tax burden on the retail price of cigarettes in the Republic of Croatia, 2017.**

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific excise (value in EUR per 1000 cigarettes)</td>
<td>41.55</td>
</tr>
<tr>
<td>Specific excise (value in EUR per pack of 20 cigarettes)</td>
<td>0.83</td>
</tr>
<tr>
<td>Specific excise (as a % of retail price)</td>
<td>26%</td>
</tr>
<tr>
<td>Ad valorem excise (%)</td>
<td>34%</td>
</tr>
<tr>
<td>Total excise (%)</td>
<td>60%</td>
</tr>
<tr>
<td>VAT (as a % of retail price)</td>
<td>20%</td>
</tr>
<tr>
<td>Total Tax Burden (as a % of retail price)</td>
<td>80%</td>
</tr>
<tr>
<td>Average price of cigarette pack (EUR)</td>
<td>3.21</td>
</tr>
</tbody>
</table>

Source: author's calculation using data from Customs Administration of the Republic of Croatia (2018)
The results of the research carried out within this project indicate that in Croatia the demand for tobacco is price-sensitive, with price elasticity in line with the results of previously conducted studies for middle-income countries. Namely, the estimated price elasticity suggests that a 10% increase in prices would result in a reduction in demanded quantity for cigarettes by 10.7%. Estimated income elasticity of 0.91 suggests that a 10% income increase would raise cigarette consumption by 9.1%.

For example, annual consumption of cigarettes in Croatia in 2017 was estimated to be 309,329,614 cigarette packs and the weighted average price of a pack of cigarettes was 3.19 EUR. Accordingly, if we assume that in the next year Croatian GDP will increase by 2.8 percent and weighted average price of a pack of cigarettes would increase by 10 percent, from 3.19 EUR to 3.51 EUR, the annual cigarette consumption would decrease by 25.46 million packs of cigarettes, all other factors remaining unchanged. Assuming that the increase in prices resulted only from an increase in the excise duty, despite the reduced volume of cigarettes sold, fiscal revenues would increase by 26.6 million EUR, of which 24.5 million EUR would come from the excise and 2.1 million EUR from the VAT.

The research shows that tax policy, to be specific - the excise policy on tobacco products, can be used as an effective tool for reducing initiation and prevalence of smoking in the Republic of Croatia.

Based on the evidence from this research, higher cigarette taxes and consequently higher prices could be used as a very effective government tool for reducing tobacco use in Croatia. The government should increase taxes on tobacco and related products, especially specific excise duties because they have a relatively higher impact on the consumption than ad valorem taxes and because specific taxes are easier to administer. Increasing the price of tobacco products makes them less affordable over time. Moreover, increased excise duties should result in increased budget tax revenues, healthcare savings, and improving the health of the population. Collected budget funds should be targeted to the healthcare system and education system to further reduce healthcare costs for treating smoking-related diseases. Also, a commitment to regional harmonization of fiscal policies is needed to limit incentives for cross-border transactions, both with European Union countries as well as with western Balkan countries, because Croatia is highly threatened by illicit trade due to its geo-communication position.

Policy dialogue among all relevant stakeholders on efficient tax policies is also an important aspect of creating a national tobacco control policy. A participative approach and stakeholder collaboration should facilitate consensus-building on objectives and solutions for comprehensive tobacco control policies. The short-term goal of such co-operation is to put tobacco taxation issues on the political agenda, to create a dialogue between researchers and decision-makers, and to develop recommendations that will result in sustainable and systematic policy change. The long-term goal is to create an effective tobacco control policy and to develop a strategic plan to reduce the damage caused by the use of tobacco in the Republic of Croatia.
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