



tobaccotaxation

Boanemia Research Informing Tobacco Taxation Policy



The Responsiveness of Smoking Prevalence and Cigarette Consumption to Changes in Price and Income in North Macedonia

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Motivation for research - **ALARMING NUMBERS!**

The small country of North Macedonia is among the leaders in the World with respect to tobacco consumption.

- Prevalence rate is relatively stable at 40%.
- The intensity of smoking is high at 28.2 packs per month per household.
 - Previous studies also reveal alarming numbers – In 2017 , prevalence rate - 35%, average smoker smokes - 21.3 cigarettes per day (Spasovska M.T and Hristovska M.B., 2018).
 - World Health Organisation projected 139,000 death consequences in the next 40 years.
- Although alarming, the tobacco consumption has not been researched extensively – neither with respect to health consequences, nor in the economic context in North Macedonia.

Recent trends in cigarettes consumption

- Data for analysis are taken from the Household Budget Survey conducted by State Statistical Office (2015-2017), approximately 2800 households per year.
- There has been a **negative relationship** between cigarette prices and consumption in North Macedonia.

Table 1: Cigarette consumption in North Macedonia

Year	Smoking prevalence percent)	Average number of cigarettes packs (per household, per month)	Average real monthly household expenditure on cigarettes (in MKD)	Average real price(in MKD)
2015	40.5%	30.5	2,226.6	73.14
2016	39.7%	29.1	2,333.9	80.41
2017	39.5%	28.2	2,550.4	89.67

Source: Author calculations based on HBS data for North Macedonia.

Smoking prevalence and smoking intensity by income group

Figure 1: Smoking prevalence and smoking intensity by income group (2015-2017)

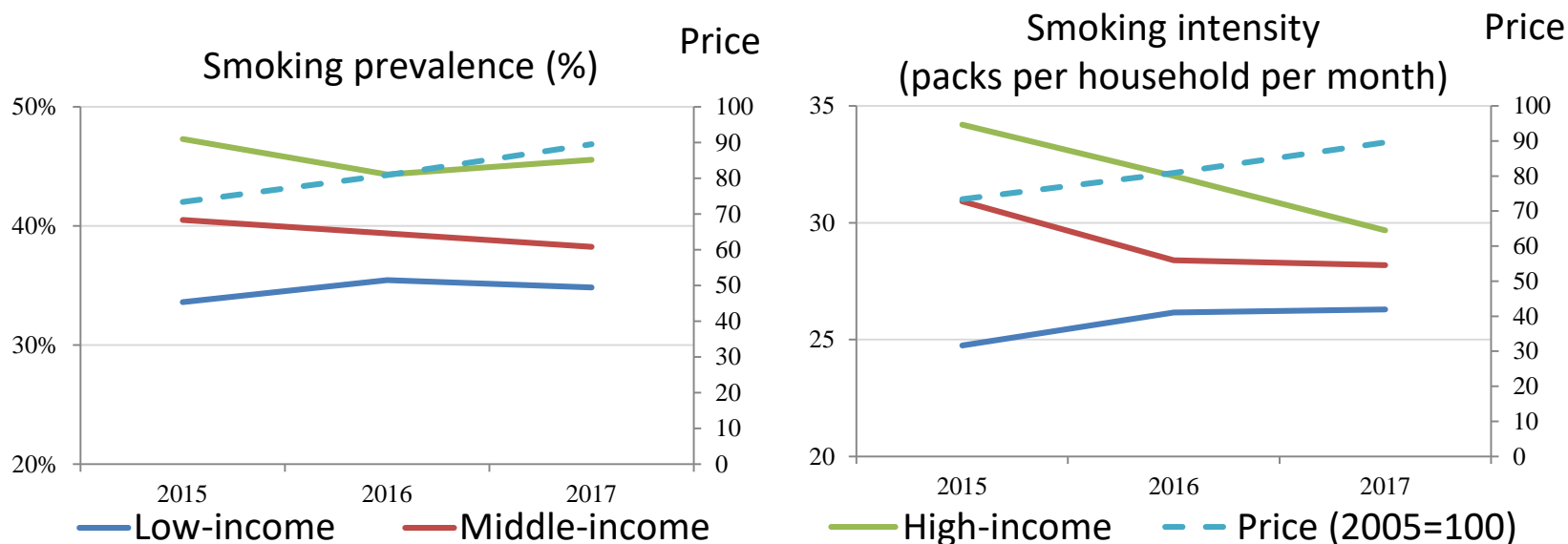


Table 2: Cigarette consumption and spending by income group

	Low income group	Middle income group	High income group
Average income (in MKD)	15,043	25,857	49,538
Average share of cigarette expenditure in total household budget	4.7 percent	3.6 percent	2.4 percent

Source: Author calculations based on HBS data for North Macedonia.

Price and Income elasticity coefficients

Table 3: Price and income elasticities of smoking prevalence and intensity

Prevalence Elasticity	Price Elasticity	-0.214*	(0.123)
	Income Elasticity	0.411***	(0.026)
Conditional intensity elasticity	Price Elasticity	-0.232*	(0.026)
	Income Elasticity	0.465***	(0.024)
Total demand elasticity	Price Elasticity	-0.446	
	Income Elasticity	0.874	

Source: Author calculations. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; standard errors in parentheses.

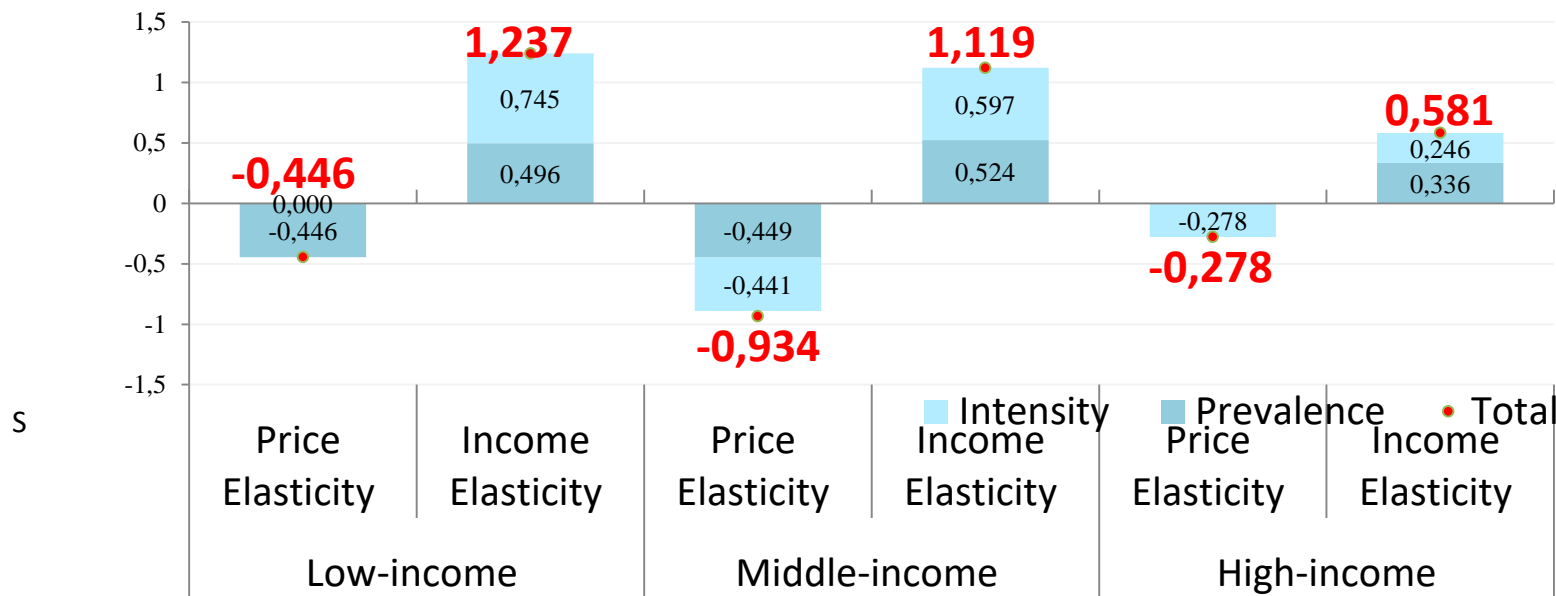
Higher prices can reduce both smoking prevalence and consumption of cigarettes among smokers.

- An increase in price of 10 percent would result in a decrease of smoking prevalence by 2.1 percent. Most of this change would come from low- and middle-income households.
- Similarly, smoking intensity would decline by around 2.3 percent.

Increases in income increases both smoking prevalence and intensity.

Price and Income elasticities of prevalence and intensity of smoking by income group

Figure 2: Price and Income elasticities by income group



Source: Author calculations based on HBS data for North Macedonia.

High-income elasticity coefficient, which is larger than 1, suggests that cigarettes can be considered as luxury good, for low- and middle-income groups in North Macedonia (Tarantilis et al, 2015).

Projected impact of higher excise taxes on cigarettes' consumption

Table 4: Projected overall change in consumption and revenues for different increases in specific excise tax

			Price	Consumption		Revenues	
			Euro	Million packs	% change	Million euro	% change
Baseline			1.28	214.5		209.8	
Scenario	Specific tax increase	Resulting price increase					
	10%	7%	1.37	212.4	-1.0%	226.5	8.0%
	25%	17%	1.50	202.5	-5.6%	242.8	15.7%
	50%	34%	1.72	186.1	-13.3%	264.0	25.8%

Source: Author calculations based on HBS data for North Macedonia.

Projected consumption and revenues by income group from a 25 percent specific excise tax increase

Table 5: Projected consumption and revenues by income group from a 25 percent specific excise tax increase

	Consumption			Revenues		
	Baseline ¹	Scenario ¹	% change	Baseline ²	Scenario ²	% change
Income group						
Low	62.1	54.9	-11.6%	60.7	65.8	8.4%
Middle	70.5	58.3	-17.3%	69.0	69.9	1.3%
High	81.9	83.9	2.4%	80.2	100.5	25.5%
Total	214.5	197.1	-8.1%	209.8	236.3	12.6%

Source: Author calculations based on HBS data for North Macedonia.

Policy implications and recommendations – **URGENT ACTION NEEDED!**

- A specific tax increase of 25 percent from **2.053 MKD to 2.567 MKD per stick (or from 33.39 EUR per 1000 sticks to 41.74 EUR per 1000 sticks)**, would reduce consumption by 8.1 percent, and increase government revenues by 12.6 percent.
 - The increase in prices should be higher than the incomes increase in order for the affordability of cigarettes to be decreased.
 - Positive dimension is that the impact of the excise increase is not socially regressive.
- Last but not least, tobacco tax policy in North Macedonia should be based on the empirical evidence for which availability and better data collection is necessity.

Thank you for your attention.



Photo courtesy by <https://cstoredecisions.com/2017/06/20/cigarettes-remain-top/>