

Measuring the economic costs of tobacco use – Evidence from Bosnia and Herzegovina

Authors:

Dragan Gligorić

Dragana Preradović

Ljubiša Mičić

Conference on health tax reforms – challenges and lessons learnt

World Bank office in Vienna

June 24-25, 2024

INTRODUCTION

- BiH ranks eleventh in the world in terms of smoking prevalence.
- In 2019 showed that 41.1 percent of adults were current smokers.
- Among daily smokers, more than 20 percent started smoking daily before the age of 18, while almost 60 percent started between the ages of 18 and 24.
- Almost half of current smokers smoke more than 20 cigarettes per day.
- These findings suggest that the population in BiH is susceptible to the development of smoking-related diseases
- The consequences are high treatment costs of such diseases and loss of productivity due to absence from work, lost of lives and other costs

INTRODUCTION

- The estimation of the economic costs of tobacco provides information about:
 - (i) the direct costs of smoking incurred from treatment of smoking-induced illness (inpatient hospitalization, outpatient visits, treatment abroad, drugs, non-medical costs),
 - (ii) indirect morbidity costs of smoking (value of lost productivity due to absence from work), and
 - (iii) indirect mortality costs of smoking (value of the life lost due to premature death).
- These estimates provide a comprehensive picture of smoking-induced illnesses and smoking-related costs for the government that can inform and improve tobacco taxation policies.

Methodology

- Mostly based on WHO, 2011
- Calculation of costs for all diseases and by diseases (robustness check)
- RR - relative risk of developing a particular tobacco-related (current/former smokers compared to never smokers).
- **RR** – Russia, Belarus, Hungary –All cause RR
- **Smoking prevalence** (for current and former smokers)- STC-SEE data for 2019
- Determining the smoking-attributable fraction (**SAF**) - a proportion of the health care costs, deaths, and other measures of health outcomes that can be attributed to smoking

Methodology

Direct medical costs

- RS, FB&H and BD
- Direct medical costs – the sum of:
 - medical costs at primary, secondary, and tertiary levels including drugs and treatment abroad
 - and nonmedical costs (transportation and caregivers costs) – 11,26%
- Out-of-pocket costs (29,33%)
- For all diseases and by smoking-related diseases
- Aproximation for FB&H and BD

Methodology

Indirect morbidity costs of smoking

- Loss of productivity
- RS, FB&H and BD
- $SAI_{ij} = SAF_{ij} \times TWLD_{ij} \times ERN_j$
- Data comprises of two database (HIF RS):
 - Inpatient hospitalization database (sick leave up to 30 days)
 - Disbursements for workers database (sick live more than 30 days)
- RS, FB&H and BD
- $SAMC_{ij} = SAF_{ij} \times \sum_{a=MINa}^{MAXa} (TDEATH_{ija} \times PVLE_{ja})$
- Mortality data – Official statistics – by diseases and total – stratified by age and gender

Salary data – Tax authority of RS (by age and gender) and official statistics

Employment rate

ILO – 30,5% of informal employment

Results

SAF – smoking attributable fraction

Republic of Srpska

	SAF for current smokers				SAF for former smokers				Total SAF			
	35-54	55-64	65-74	>=75	35-54	55-64	65-74	>=75	35-54	55-64	65-74	>=75
Males												
USA RR	51.31	50.57	53.61	25.55	1.25	1.79	2.02	2.37	52.56	52.37	55.64	27.92
Belarus RR	36.39	30.65	32.91	17.11	0.00	0.00	0.00	0.46	36.39	30.65	32.91	17.57
Females												
USA RR	22.25	33.65	29.76	21.20	2.98	3.85	6.16	5.70	25.23	37.51	35.92	26.90
Belarus RR	19.10	17.45	13.72	11.21	1.69	0.00	0.00	0.00	20.79	17.45	13.72	11.21

Results

SAF – smoking attributable fraction

Federation of BiH and BD

	SAF for current smokers				SAF for former smokers				Total SAF			
	35-54	55-64	65-74	>=75	35-54	55-64	65-74	>=75	35-54	55-64	65-74	>=75
Males												
USA RR	45.39	45.25	46.65	6.71	2.77	3.87	4.51	5.81	48.16	49.13	51.16	12.52
Belarus RR	31.65	27.02	27.94	4.26	0.00	0.00	0.00	1.06	31.65	27.02	27.94	5.32
Females												
USA RR	26.80	32.58	31.07	7.29	0.92	1.30	2.05	2.25	27.72	33.87	33.11	9.54
Belarus RR	22.98	16.21	13.72	3.39	0.52	0.00	0.00	0.00	23.50	16.21	13.72	3.39

Results

Economic costs of smoking in BiH, 2019

- Belarus RR

Millions of BAM

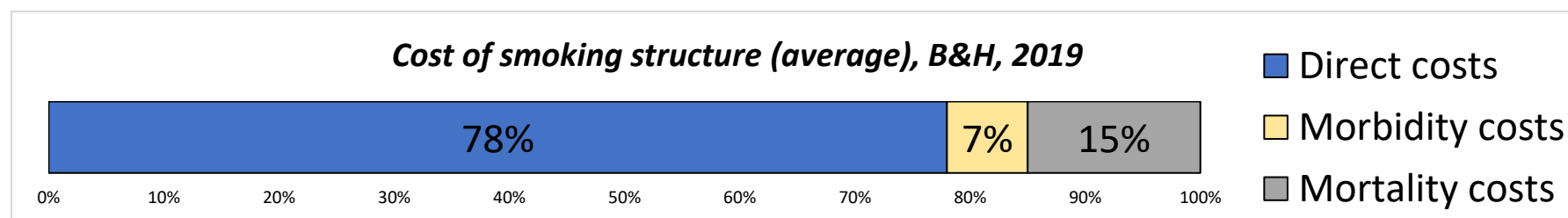
Type of the cost	Republic of Srpska			Federation of BiH and BD			Bosnia and Herzegovina		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Direct costs	140.70	82.71	223.41	196.62	137.27	333.89	337.32	219.98	557.30
Indirect morbidity cost	13.82	6.32	20.14	20.04	10.41	30.45	33.86	16.73	50.59
Indirect mortality cost	40.30	7.30	47.60	49.88	13.37	63.25	90.18	20.67	110.85
TOTAL	194.82	96.33	291.15	266.54	161.05	427.59	461.36	257.38	718.74

Results

Economic costs of smoking in BiH, 2019

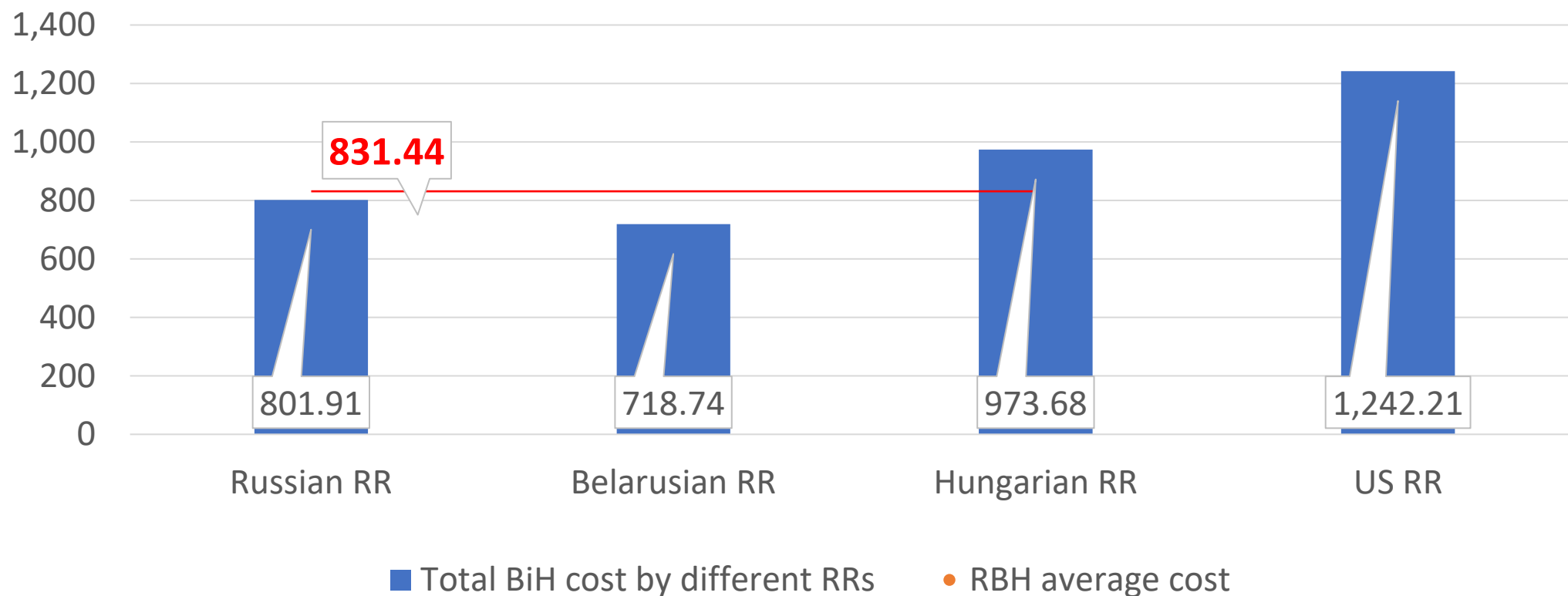
- Average, based on RBH RR – 2.36% of GDP

Type of the cost	Republic of Srpska			Federation of BiH and BD			Bosnia and Herzegovina		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Millions of BAM									
Direct costs	155.07	104.69	259.77	219.32	169.22	388.53	374.39	273.91	648.30
Indirect morbidity cost	15.14	7.87	23.01	22.16	12.66	34.81	37.30	20.52	57.82
Indirect mortality cost	44.51	8.94	53.46	55.49	16.37	71.86	100.00	25.31	125.32
TOTAL	214.73	121.50	336.23	296.96	198.24	495.21	511.69	319.75	831.44



Results

Economic costs of smoking in BiH, 2019 (milions of BAM)



Tortal economic costs of smoking - by diseases – Robustness validation

COST OF SMOKING IN 2019 – million BAM	Republic of Srpska			Federation of BiH and Brčko District			Bosnia and Herzegovina		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Direct costs	57.35	33.86	91.21	86.71	48.19	134.91	144.06	82.05	226.11
Indirect morbidity cost	4.53	1.28	5.80	6.86	1.96	8.81	11.38	3.23	14.62
Indirect mortality cost	37.89	6.80	44.69	62.79	14.62	77.41	100.68	21.42	122.10
TOTAL	99.76	41.94	141.70	156.36	64.77	221.13	256.12	106.70	362.82

Recommendation

- The government should reintroduce the regular annual increase of the tobacco excise tax —which was abandoned in 2019 — to decrease consumption of tobacco and exposure to secondhand smoke, encourage smoking cessation, discourage smoking initiation, and raise tax revenues.
- The government should stop considering tobacco excise only as a revenue instrument, but also use it as a tool to decrease tobacco use and allocate the new tax revenues toward public health, including tobacco control.
- The government should improve the implementation of other tobacco control measures, such as enforcing smoke-free areas in public spaces, utilizing the influence of mass media and social platforms, and expanding the use of visual health warnings.
- Health Insurance Funds should provide increased resources for comprehensive cessation programs.
- The government should mandate recording of smoking status in the health file of every patient, so costs of tobacco can be tracked better.

Limitations

- Lack of RR estimates for BiH and inability to estimate them
- Lack of a detailed database for health costs for the whole BiH
- Underestimation of indirect morbidity and indirect mortality costs:
 - Wages are underestimated due to tax evasion by employers
 - Very low level of productivity and wages in BiH
 - Employed persons who were on sick leave for fewer than 30 days and were not hospitalized are not included in morbidity costs estimation

Thank you for your attention!

Questions?

UBL team:

Project manager: andjela.pepic@unibl.org

Principal investigator: dragan.gligoric@ef.unibl.org