



tobaccotaxation

Economic Research Informing Tobacco Taxation Policy

Accelerating Progress on Effective Tobacco Tax Policies in Low- and Middle-Income Countries

National Study – Bulgaria

Economics of Tobacco and Tobacco Taxation

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Summary of this report

There is a full-scale tobacco epidemic in Bulgaria, the member state with the highest tobacco prevalence in the European Union that also shows alarming levels of tobacco use among youth. According to the Organization for Economic Cooperation and Development, 18% of all death cases in Bulgaria are associated with tobacco products consumption¹. This translates into 20 000 human lives lost each year.

This report approaches tobacco economics and tobacco taxation in Bulgaria from the standpoint of tobacco control. It follows the tobacco products supply chain and confirms that it currently contributes only marginally to domestic employment and production yet provokes a heavy outflow of household income abroad. The national tobacco products demand is also distorted against the background of a mass culture that normalizes smoking. As regards the taxation of tobacco products this report shows that the Bulgarian governments, by keeping the excise duty mostly flat since 2011 have contributed (along with the growing incomes) to raising the national per capita cigarette consumption by 43% in a decade.

An econometric macro model proves that introducing higher excise duty on tobacco products in Bulgaria might increase the government revenues in the short and medium term while substantially decreasing the number of cigarettes consumed. The calculated price elasticity of tobacco demand in Bulgaria falls in the range between 0.737–0.826. In real terms, this implies that a hypothetical 20% increase in specific excise duty on cigarettes would result in a nearly 14% higher purchase price of cigarettes, along with 84-132 million Bulgarian leva higher public revenues – accompanied by 77-87 million fewer packs of cigarettes consumed in a year.

This is a win-win scenario but only if the public interest serves as an overarching principle in government decisions concerning public health and public revenues.

Some of the other major findings of this report are summarized below:

- National subsidies to tobacco growers are more than three times the value of tobacco produced.
- Up to 93% of cigarettes consumed in Bulgaria are being imported.
- Cigarettes are rapidly losing market share while novel tobacco products remain undertaxed.
- Bulgaria tops the European rankings of tobacco prevalence, with a high share of female smokers.
- The level of tobacco consumption among Bulgarian youth is alarming, especially for girls.
- Tobacco prevalence among affluent Bulgarians is higher than among people in the lower income groups.
- Tobacco taxation (excise duty + VAT) is responsible for nearly 1/7th part of government revenues in Bulgaria.

¹ OECD/European Observatory on Health Systems and Policies. (2021). *Bulgaria: Country Health Profile 2021*. Paris: OECD Publishing. Available: <https://www.oecd.org/publications/bulgaria-country-health-profile-2021-c1a721b0-en.htm>

- During the last decade affordability of cigarettes increased substantially. Many Bulgarians who had quitted now have returned to smoking due to the affordability of tobacco products.

1. Introduction

General information about Bulgaria

Bulgaria is an upper-middle-income country situated in Southeastern Europe that covers a territory of 110 994 square km. Between 1944 and 1989 it was a part of the Soviet bloc, being a member of Comecon. A major event in the newest history of Bulgaria was its accession to the European Union in 2007. Though this Balkan country retains its position as the ‘poorest EU member state’ with only 30.5% of the Union’s average Gross Domestic Product per capita (55.2% in purchasing power parity) it slowly converges to the economic and institutional framework of the EU. The GDP per capita as of 2021 was EUR 9850.

A major factor impacting the socioeconomic prospects of Bulgaria is the rapid depopulation due to high mortality, low birth rate, and continued migration. According to the newest population census of 2021, Bulgaria lost roughly 845 000 inhabitants in a decade. The average life expectancy in Bulgaria is 71.4 years, which is the lowest value in the EU. Bulgaria’s crude death rate as of 2020 was the highest in the world, according to the World Bank: 18 per 1000 people².

Bulgaria boasts macroeconomic stability. Since 1997, Bulgaria has supported a currency board regime, with a fixed exchange rate of 1 Bulgarian lev (BGN) = 0.5113 euro. The consolidated gross debt of the Bulgarian government is 25.1% of GDP, as of 2021.

The general tax burden in Bulgaria is among the lowest in the EU, with total receipts from taxes and social contributions for 2020 amounting to 30.6% of GDP. Taxes on products and imports are responsible for exactly half of this number.

As of August 2022, the annual increase of the Consumer Price Index amounted to 17.7% (though the price of tobacco products remained flat for years). The inflation spike, compounded by the effects of the war in Ukraine and the global energy crisis, worsened the prospects for the Bulgarian economy. The OECD expects the national GDP to increase by 1.7% in 2022.

Methodology and data availability

This report is an abridged version of a more detailed work covering tobacco economics and tobacco taxation in Bulgaria. The extended version of the report lists all sources of publicly available statistical

² See World Population Review. (2022). Death rate by country 2022. Available: <https://worldpopulationreview.com/country-rankings/death-rate-by-country>

information used here and provides important details about the interference of the tobacco industry in national politics³, as well as a more detailed methodology of price elasticity estimations.

The analysis is based on four main input sources: 1) publicly available statistical information pertaining to tobacco production and consumption; 2) market data compiled by the tobacco industry or its affiliate organizations (when possible, we tried to bypass such sources and interpreted their findings with caution); 3) public reflections on tobacco-related issues (political statements, media publications, books, reports, etc.); 4) econometric analysis.

A general conclusion regarding the availability of tobacco-related data is its inconsistency. Data on tobacco consumption and taxation in Bulgaria is surrounded by smoke and mirrors, in line with the policy of low tobacco taxation in the country with the highest mortality globally, along with the highest EU smoking prevalence rate.

As regards the econometric analysis, a linear regression model has been applied on a macro level, with the aim to research the relationship between tobacco consumption, the price of tobacco products, and disposable incomes – and to calculate the coefficients of this relation. We followed the procedure of the Error Correction Model, thereafter applying seven post-estimation statistical tests that proved that our macro model is mostly reliable. We underline that the calculated price and income elasticities of tobacco consumption are valid only if the governments would not tolerate the illicit tobacco trade.

2. Supply of tobacco products in Bulgaria

Tobacco farming and wholesale tobacco trade

Tobacco production in Bulgaria reached an industrial scale only at the end of the XIX century, being on many occasions an “intensely destabilizing” factor for the Bulgarian economy⁴. During the years of the socialist regime, under the umbrella of the state-owned Bulgartabac holding, Bulgaria topped the world ranking in per capita tobacco production⁵. The operational model included a number of small semi-independent farmers and a megastructure responsible for everything else – from seeds to cigarette branding. The tobacco-related sector was a major source of foreign currency for the regime.

After 1990 tobacco production in Bulgaria rapidly declined. In 2001 under tobacco cultivation were 47 800 hectares of arable land, and the overall production amounted to 57 800 tons. In 2020 the total tobacco yield in Bulgaria amounted to only 5 430 tons, with 5 440 hectares harvested (a 92.6% decline in 20 years).

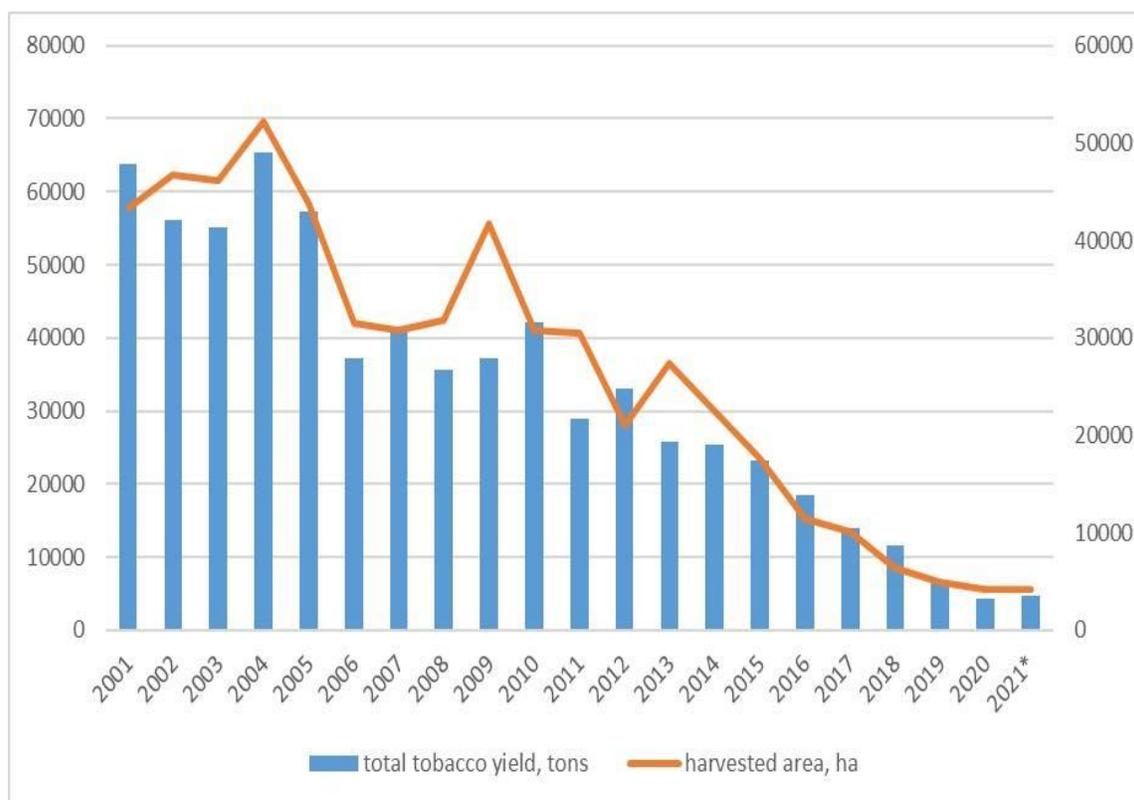
³ See also Gavrailova, M., Geshanova, G., Antonov, P. (2022). Toxic Dependence: How industry shapes tobacco control policies to its advantage. Sofia: Smoke-Free Life Coalition. Available: https://coalicia.bezdim.org/images/pdf/Toxic-Dependence_EN.pdf

⁴ Neuburger, M. C. (2013). *Balkan Smoke: Tobacco and the Making of Modern Bulgaria*. Ithaca and London: Cornell University Press.

⁵ Yadev, D. (2003). *Bulgartabac: Recollections*. Sofia: Sibia. (in Bulgarian).

These developments are shown in Figure 1. (The spike in 2009 is most probably due to a deadline for entering of tobacco growers into registers). The sales of Bulgarian raw tobacco in 2020 amounted to **21.6 million BGN**. Tobacco producers entered into the registry at the Bulgarian Ministry of Agriculture were 3345 as of 2021. Obviously, **tobacco now plays only a marginal role in Bulgarian agricultural production**.

Figure 1 Harvested area and total tobacco yield (tons– left axis; hectares – right axis)



Source: Agrarian Reports, Ministry of Agriculture, Food and Forestry. Preliminary results for 2021

Two-thirds of the raw tobacco produced in Bulgaria are Oriental tobaccos – narrow-leaved varieties grown predominantly in the Balkans. They are grown mostly by small-scale farmers in the southern mountainous parts of the country. The average size of land under Oriental tobacco per farmer as of 2020 was 0.86 hectares (roughly two acres)⁶. Tobacco growing is a labor-intensive activity with a low added value. In some of the established tobacco regions in Southwestern Bulgaria, there are cases of big villages that underwent a **remarkable boom of economic activity after abandoning tobacco growing**⁷. When the farmers switched to more productive agricultures like berries and nuts, and to husbandry, the living standard of whole villages considerably improved.

⁶ Kasheva, M. (2021). Development and management program of the Institute for Tobacco and Tobacco Products, 2021-2024. Markovo village, Plovdiv district: Academy of Agriculture. (In Bulgarian).

⁷ Nikolova, V. (2022). "Breznitsa village – the little economic miracle of Bulgaria's Southwest". *Radio Bulgaria*. May 26, 2022. Available: <https://bnr.bg/en/post/101652698/breznitsa-village-the-little-economic-miracle-of-bulgarias-southwest>.

According to the Bulgarian Tobacco and Tobacco Products Act (TTPA), all legal entities that possess a license for wholesale purchasing of raw tobacco must be entered into a registry supported by the Ministry of Agriculture, Food, and Forests. There were 40 companies registered as of September 2022. Only four of them operated on a bigger scale: Seke Kardzhali, based in Plovdiv; Socotab, based in the Radinovo village near Plovdiv; Missirian Bulgaria, based in Shumen; and Alliance One Tobacco Bulgaria, based in Haskovo.

Of them, Socotab has by far the biggest scale. This Swiss-owned firm is active in purchasing Oriental tobacco for American clients and currently operates in four Balkan countries: Greece, Bulgaria, Turkey, and North Macedonia. In Bulgaria, Socotab owns a manufacturing facility that processes tobacco purchased in Bulgaria and Greece. According to the annual financial report, the revenue of Socotab for 2020 was BGN 140.4 million, with BGN 4.8 million in profits.

Second in size among tobacco wholesalers is Alliance One Tobacco Bulgaria (a subsidiary of Alliance One International) with revenues of BGN 10.8 million for 2020. In 2015 Alliance One moved its processing facility to Kavadarci, North Macedonia, retaining only its purchasing business in Bulgaria. At the end of 2021, **Alliance One took the “strategic decision” to cease all its Bulgarian operations**. The remaining two bigger tobacco wholesalers are Greek-owned firms with processing facilities in Xanti and Kavala.

Manufacturing of tobacco products

For decades the cigarette production in Bulgaria has been associated with Bulgartabac – established in 1947 this state-owned company in its heydays had an annual capacity of 75 billion cigarettes and was the world’s top exporter (up to 90% went to the former USSR). After 1990, Bulgartabac sold separately its numerous production facilities, and the holding structure was finally privatized in 2011 for the sum of EUR 100.1 million. The real identity of the interests that acquired Bulgartabac remains concealed to this day⁸.

After privatization Bulgartabac limited and eventually halted its production operations. In 2017 the company sold its well-known brands – “Victory”, “Eva Slim” and “GD”, among others – to British American Tobacco, for the price of EUR 100 million. In 2019, BAT replaced the purchased Bulgarian brands with its own global brands⁹. The cigarette factory in Blagoevgrad has been closed, and the machines sold abroad.

⁸ Natov, E. (2018). “The majority owner sold its stakes in Bulgartabac Holding”, *Banker.bg*, July 16, 2018 (in Bulgarian).

⁹ Boyadjiev, Y. (2019). “The silent murder of Bulgartabac”. *Deutsche Welle*, January 22, 2019. (In Bulgarian).

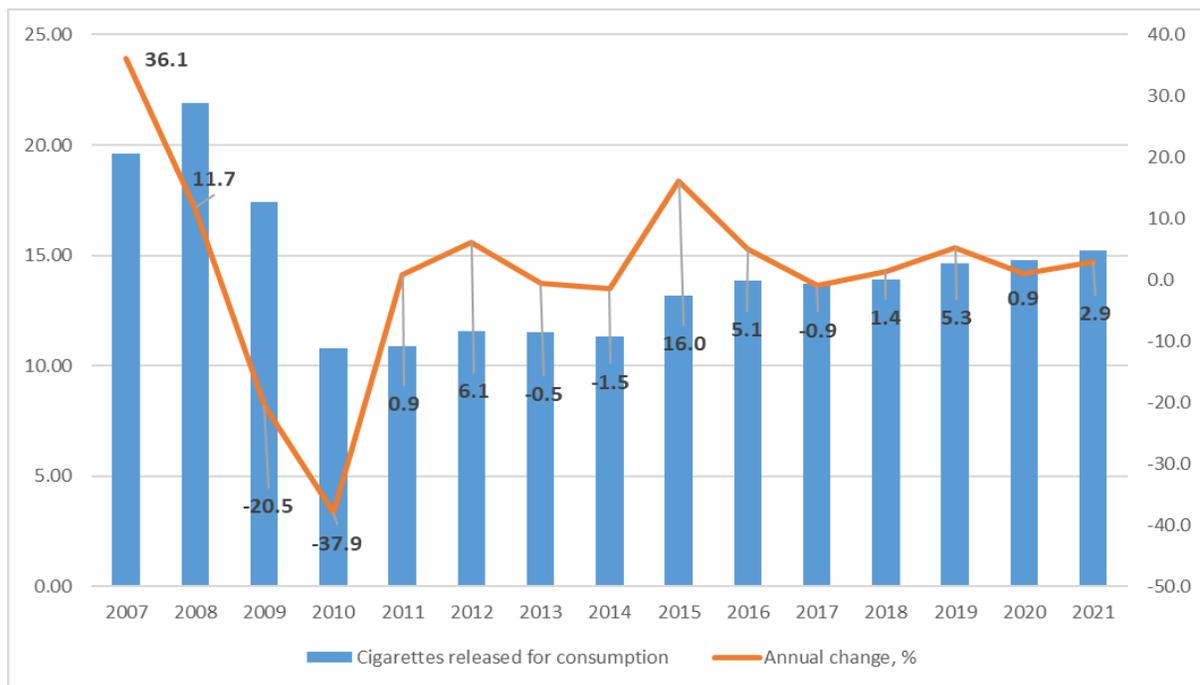
According to Eurostat data, as of 2010 – shortly before the final dismantling of Bulgartabac – 27 enterprises were active in tobacco manufacturing in Bulgaria, with 4647 persons employed, and an annual turnover of EUR 687.8 million, with EUR 92.2 million value added¹⁰.

Currently, there is only one producer of cigarettes in Bulgaria – the Plovdiv-based KT International focused on the economy price segment. Its cigarette factory was also a part of Bulgartabac but was privatized already in 2009. KT International has two main brands – “THE KING” and “Merilyn”. According to the annual financial report, its sales for 2020 were BGN 114 million. Of this, 82% were sold abroad.

Bulgarian market for tobacco products

The Bulgarian Customs Agency publishes the number of cigarettes released for consumption (i.e. with paid excise duty) on an annual basis. For 2021 it was 15.205 billion pieces. For four consecutive years, there was a steady growth in the number of cigarettes released for consumption. In fact, levels above 15 billion cigarettes released for consumption have not been seen since 2009.

Figure 2 Cigarettes released for consumption (in billion, left axis; annual % change, right axis)



Source: Customs Agency, own calculations.

¹⁰ Eurostat. (2012). “Manufacture of tobacco products statistics – NACE Rev. 2”. Available: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:Manufacture_of_tobacco_products_statistics_-_NACE_Rev._2&oldid=90710

Regarding the monetary value of cigarettes and other tobacco products sold in Bulgaria, given the number of cigarettes with paid excise duty (760 million packs for 2021), and the average price for a pack (BGN 5.41), their total value amounts to BGN 4.11 billion. Yet it is unclear whether this quantity was absorbed entirely by the Bulgarian market. This calculation is slightly above both industry and Euromonitor data¹¹.

According to Euromonitor, **cigarettes are rapidly losing market share in the Bulgarian tobacco portfolio**. In 2021, cigarettes were responsible for 86.7% of the total sales of tobacco products in Bulgaria while in 2016 their share was 96.4%. Declining cigarette sales are offset by a 10% increase in sales of fine-cut tobacco, and even bigger growth in sales of novel tobacco products like heated tobacco, e-vapes, etc.

Currently, there are six major companies in the Bulgarian cigarette market. The biggest is BAT responsible for more than a third of the total sales. Second is the Greek company Karelia – yet its “Karelia” brand was the most popular in Bulgaria, with a 17.3% market share (as of March 2019)¹². According to Kapital Weekly, KT International, the only local producer, held a 7.3% share of the Bulgarian cigarette market in 2021. **Thus almost 93% of domestic cigarette consumption was covered by imported cigarettes.**

The Customs Agency provides data on the distribution of cigarettes released for consumption according to the average price of a pack. More than 50% of the cigarettes released for consumption are in the lowest two price groups of BGN 5.20 and BGN 5. There is a general price convergence of cigarettes – the spread between the cheapest and the most expensive mass brands is only 30%.

3. Demand for Tobacco Products

Tobacco prevalence in Bulgaria

All of the relevant studies reviewed by the authors of this report confirm that the general tobacco prevalence in Bulgaria is unusually high; among the highest not only in Europe but also in the world.

According to the European Health Interview Survey (EHIS) from 2019, Bulgaria had the highest share of smokers among the member states of the EU, plus Serbia and Turkey who were also covered by the study. Bulgarian prevalence stood at 29.1% daily, and 7.1% occasional smokers (population above 15 years).

¹¹ Euromonitor. (2022). “Tobacco in Bulgaria. Passport”. Euromonitor International, July 2022.

¹² Offnews. (2019). “Which cigarettes do the Bulgarians smoke?”. *Offnews.bg*, April 21, 2019. (In Bulgarian). Available: <https://offnews.bg/ikonomika/kakvi-tsigari-pushii-balgarinat-tablitci-701583.html>

A nationwide study of the health risk factors by the National Center of Public Health and Analyses (NCPHA) found in 2020 that 39.4% of Bulgarian adults (above 20 years) used nicotine-containing products¹³. The previous survey from 2014 applying the same methodology found a 37.4% prevalence.

The WHO global report on trends in the prevalence of tobacco use¹⁴ estimated a 39% tobacco prevalence (consumption of all kinds of tobacco products) in Bulgaria for 2020. This study ascertained that Bulgaria counts among the leaders in tobacco prevalence not only in Europe but also in the world.

Eurobarometer survey¹⁵ from 2020 revealed similar trends: 38% of all Bulgarians smoked or used other tobacco-related products on a daily basis. Eurobarometer also followed the number of ex-smokers and of those who have never smoked. For Bulgaria – unlike in other EU countries – **the share of current smokers was growing while that of the ex-smokers was decreasing.**

According to Exacta Research Group, a polling agency, tobacco prevalence in Bulgaria in 2020 even surpassed 41%, and only 35.8% of the respondents declared that they have never smoked.

The listed sources are sufficient to conclude that tobacco prevalence in Bulgaria is among the highest in the EU and globally, and it is growing. The reasons for this are complex – regional, cultural, political, pertaining to the price of tobacco products, etc. – and they require a thorough interdisciplinary study.

Youth tobacco use

According to the latest Global Youth Tobacco Survey for Bulgaria (2015), encompassing 4042 students in 7-9 grades, current users of tobacco products are 27.4% of Bulgarian boys and 30.1% of Bulgarian girls. The GYTS found that **tobacco consumption among young Bulgarians moved away from cigarettes** (20.4% current cigarettes smokers compared to 33.1% in 2002) to other tobacco products (13.3%) and electronic cigarettes (10.8%)¹⁶.

The 2018 survey of the WHO regional office for Europe named “Health Behavior in School-Aged Children” (HBSC)¹⁷ estimated that 9% of the girls and 8% of the boys aged 11 in Bulgaria were current smokers –

¹³ Teolova, E., Tzolova, G., Dimitrov, P. (2022). “Distribution of smoking among the population at the age of 20 years and older in the Republic of Bulgaria”. In: National Survey on Risk Factors for Population’s Health in Bulgaria. Bulgarian Journal of Public Health, Vol. 14 No 2. Supplement. pp. 121-134.

¹⁴ World Health Organization. (2021). “WHO global report on trends and prevalence of tobacco use 2000-2025, fourth edition”. World Health Organization. Available: [WHO global report on trends in prevalence of tobacco use 2000-2025, fourth edition](https://www.who.int/publications/m/item/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-fourth-edition)

¹⁵ Eurobarometer. (2021). Attitudes of Europeans towards tobacco and electronic cigarettes. Country Factsheet Bulgaria. February 2021, European Commission. Available: <https://europa.eu/eurobarometer/surveys/detail/2240>

¹⁶ World Health Organization. (2019). Global Youth Tobacco Survey 2015. Bulgaria. Available: <https://extranet.who.int/ncdsmicrodata/index.php/catalog/519>

¹⁷ World Health Organization. (2020). “Spotlight on adolescent health and well-being. Findings from the 2017/2018 Health Behavior in School-aged Children (HBSC) survey in Europe and Canada”. Volume 2: Key Data. Copenhagen: WHO Regional Office

that is, they have smoked in the last 30 days. Among 15-year-olds, this percentage increased to an alarming 38% for girls and 26% for boys. The share of smoking 15-year-old girls in Bulgaria is the highest in Europe, with Bulgarian boys being second to Lithuania. More than 40% of 15-year-old Bulgarians have smoked at least once. Such findings are disturbing since over 2/3 of the people who have tried even one cigarette turn into regular smokers, at least for a certain period¹⁸. A Smoke-free Life Coalition/BlueLink report also estimated the smoking prevalence among Bulgarian youth (18-35) by using an online survey, and compared the results with a parallel nationally representative study conducted by Exacta Research Group. The results were even more striking: 45.7% resp. 50.4% of current smokers.¹⁹

Important conclusions can be drawn from the HBSC data on youth tobacco consumption according to the income levels of the families. Youth tobacco prevalence in Bulgarian families with 'low' and 'high' affluence was very similar. This might imply that smoking drivers for young people in Bulgaria are not connected with their milieu but with the broader sociocultural environment that normalizes smoking.

Gender and income distribution of tobacco consumption

Bulgaria diverges from the typical tobacco consumption patterns in several respects. For instance, tobacco prevalence rates for Bulgarian women are unusually high – 37.1%, according to the age-standardized estimations of the WHO (being the third highest in the world, after Nauru and Serbia). The elevated tobacco use among Bulgarian girls stands in clear relation to the above fact – but is even more alarming when considering that the share of current smokers among Bulgarian teenage girls is higher than that of adult women. Given the gender-specific consequences of tobacco use²⁰, the female smoking rate in Bulgaria foreshadows a potential public health disaster. Moreover, in view of the strictly negative demographic trends for Bulgaria, it might be regarded as a threat to the vitality of the nation.

Equally striking is that unlike most countries in the world, smoking prevalence among the richest Bulgarians is higher than among people with lower incomes. The EHIS data allow for intersecting tobacco demand with the income distribution of the population, and as evident from figures 3A and 3B, the fifth income quintile in Bulgaria (the most affluent 20% of the population) shows the highest prevalence rate – whereas for the EU the lowest prevalence rate is exactly in the fifth quintile. When comparing the results for 2014 and 2019 it is evident that this trend not only persists but deepens. A possible explanation for the inverse income pyramid of tobacco use in Bulgaria is that tobacco consumption among the richest Bulgarians turned into a kind of a status symbol.

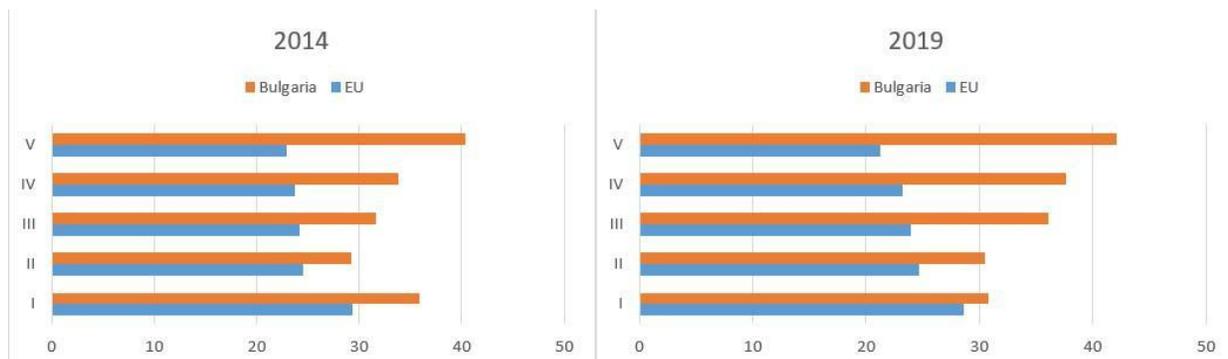
for Europe. Available: <https://apps.who.int/iris/bitstream/handle/10665/332104/9789289055017-eng.pdf?sequence=1&isAllowed=y>

¹⁸ Birge, M. et al. (2018). What proportion of people who try one cigarette become daily smokers? A meta-analysis of representative surveys. *Nicotine Tob Res.* November 15, 20(12):1427-1433. Available: <https://pubmed.ncbi.nlm.nih.gov/29126298/>

¹⁹ Smoke-free Life Coalition/BlueLink. (2021). An Unhealthy Relationship: Bulgarian young people's attitudes to using tobacco products. Research Report. Available: <https://coalicia.bezdim.org/images/pdf/tobacco-and-young-people-report-2021.pdf>

²⁰ Dalmau, R. (2021). Women and tobacco, a gender perspective. *E-Journal of Cardiology Practice*, Vol. 20, No 3. Available: <https://www.escardio.org/Journals/E-Journal-of-Cardiology-Practice/Volume-20/women-and-tobacco-a-gender-perspective>

Figure 3 Tobacco prevalence (daily and occasional smokers) in the income quintiles, in %



Source: Eurostat (European Health Interview Surveys)

Demand for Alternative Tobacco products

Manufactured cigarettes still remain the most popular tobacco product in Bulgaria – according to the 2020 Eurobarometer survey, 91% of Bulgarian current smokers use it on a daily basis, the same share as in 2017. Yet many Bulgarians are increasingly replacing cigarettes with novel tobacco products.

According to Euromonitor, in 2021 the total sales of novel tobacco products (smokeless tobacco, e-vapor products, and heated tobacco) amounted to BGN 381.1 million – up 11.6% on an annual basis and a 950% increase in the last five years. Novel tobacco products are still responsible for only 10.4% of the total tobacco market in Bulgaria but they grow rapidly whereas growth in factory cigarettes is already negative.

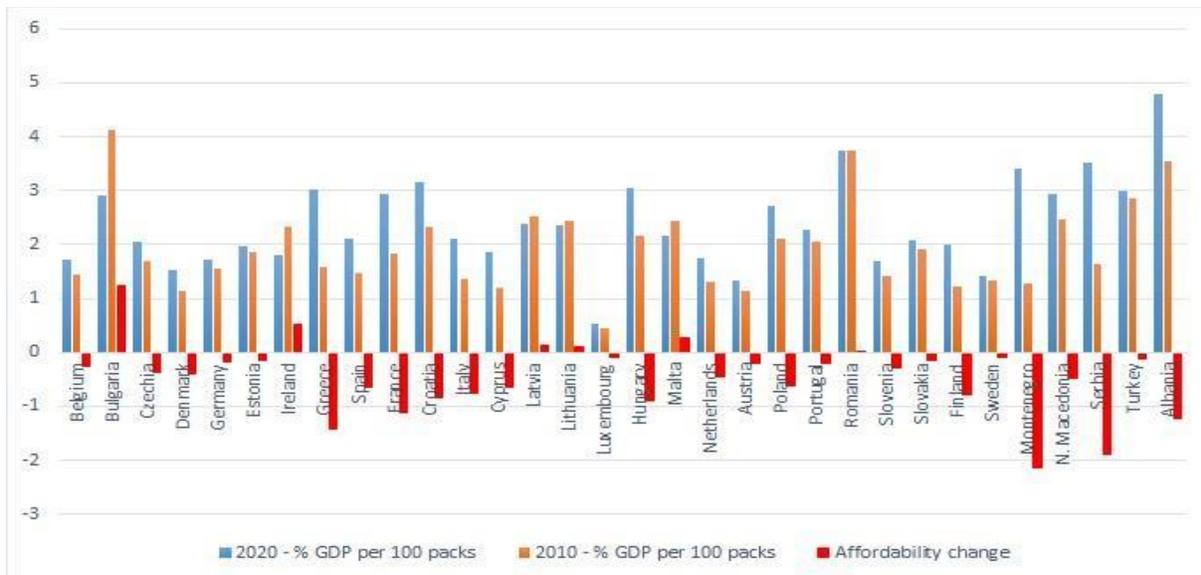
The Eurobarometer survey also shows that 12% of adult Bulgarians have “at least tried” heated tobacco products whereas the EU average was only 6%. Similarly, 13% report at least some experience with e-cigarettes. For the age group of 25-39, the respective shares were 21% and 22%. More than one-quarter of Bulgarian smokers have tried “emerging tobacco products” which is likely an indication of dual-use: consumption of traditional and novel tobacco products by the same individuals. According to the Bulgarian Customs Agency, the import of e-cigarettes and related products, mainly from China, Hong Kong, and the United Kingdom, grew from BGN 7 million in 2019 and 2020 combined to BGN 47 million in 2021²¹. The increased consumption of alternative tobacco products might be interpreted as a fleeting snobbish demand – yet this shift in consumer preferences has many tangible consequences. The major tools for tobacco control so far have been focused on the cigarette market. When younger consumers are consistently exiting the cigarette market, **tobacco control measures fall behind consumer dynamics**.

²¹ Customs Agency (2022). “The Customs Agency uncovered evasion of tariffs and VAT in order of BGN 1 million by importing of electronic cigarettes for one-time use”. *February 21, 2022*. (In Bulgarian). Available: <https://customs.bg/wps/portal/agency/media-center/news-details/21-02-e-cigarettes>

Affordability of Tobacco Products in Bulgaria

One of the most important conclusions concerning the tobacco products' supply and demand in Bulgaria is that the affordability of tobacco products has steeply increased during the last decade. This may be explained by the increase in disposable incomes going hand-in-hand with reluctant tobacco taxation.

Figure 4 Changes in cigarette affordability between 2010 and 2020, in percentage points



Source: Eurostat, WHO, own calculations

The established measure of tobacco affordability is the percentage of the per capita GDP needed for buying 100 packs of the most popular cigarettes²². Using WHO and Eurostat data we calculated that in 2010 the cigarette affordability rate in Bulgaria was 4.1%; the lowest in Europe. But in the decade that followed the nominal price of the most popular brand of cigarettes grew by only 22% whereas the nominal GDP per capita soared by 74%. Thus in 2020, only 2.9% of GDP per capita was needed for buying 100 packs, or even 1.56% when considering the purchasing power parity. In most other European countries cigarette affordability declined during this period. The changes in cigarette affordability between 2010 and 2020 are shown in Figure 4.

²² Blecher, E., Ross, H., Leon, M. (2012). Cigarette affordability in Europe. *Tobacco Control*, 22:e6. Available: <https://untobaccocontrol.org/taxation/e-library/wp-content/uploads/2020/06/cigarette-affordability-in-Europe.pdf>

4. Tobacco taxation in Bulgaria

Institutional base and structure

Taxation of tobacco products in Bulgaria is specified in the Law on Excise Duties and Tax Warehouses which corresponds to the EU Council's Directive 2011/64/EC. Bulgaria applies a mixture of ad valorem (calculated on the basis of the selling price) and specific excise duty on cigarettes. The ad valorem excise duty amounts to 25% of the selling price, and the specific excise duty is BGN 109 per 1000 cigarettes. The minimum excise duty per 1000 cigarettes is BGN 177 (BGN 3.54 for a pack of cigarettes). Excise duty on smoking tobacco amounts to BGN 152 per kilogram. Since October 2018 excise duty on heated tobacco products is BGN 233 per kilogram based on the quantity of tobacco contained²³.

Bulgaria adheres to the minimal excise rates set by Directive 2011/64. Due to the low domestic retail prices, these rates are responsible for more than 65% of the average selling price of cigarettes. The VAT adds another 16.67%. Thus the tobacco industry remains with a 17.9% share, and 82.1% of the price is being collected by taxation. The tax share for the cheapest cigarettes (priced at BGN 5) was 85.27% as of 2020²⁴.

The high share of indirect taxation in the selling price of cigarettes in Bulgaria earned 4.5 points out of 5 in the global Cigarette Tax Scorecard yet its impact on tobacco consumption is diminished by the increased affordability of cigarettes²⁵. The lower excise duties on tobacco products different from cigarettes (smoking tobacco, heated tobacco products, cigars and cigarillos, shisha, etc.) raise additional concerns. Providing 0.6 grams of tobacco per hand-rolled cigarette, the excise duty on smoking tobacco amounts to only 51.5% of the "regular" factory cigarettes. At the opposite end of the price spectrum, cigars and cigarillos – the luxury segment – remain undertaxed with BGN 270 per 1000 pieces.

Heated tobacco products enjoy a similar tax advantage. Until October 2018 they were taxed at the same rate as smoking tobacco. When measured per pack, this was equal to only 26% of the excise duty for a pack of cigarettes. After heated disputes, HTP excise duty has been raised to 40% of that for cigarettes.

²³ On December 8, 2022, the Bulgarian Parliament approved raising excise duties on tobacco products, which will enter into force on March 1, 2023. The new excise calendar envisions a 5% annual increase of the excise on manufactured cigarettes for each of the next four years (achieved by gradually raising the specific and decreasing the ad valorem component), and a 10% annual increase of the excise on smoking tobacco. The liquids for e-cigarettes will be excised for the first time – initially with BGN 0.18 per milliliter, reaching BGN 0.25 per milliliter by 2026. Excise duties for heated tobacco products were raised by 21% to BGN 282 per kilogram, with planned increase to BGN 400 per kilogram by 2026. The positive fiscal effect of these tax measures has been estimated at BGN 600 million.

²⁴ World Health Organization. (2021). "Taxes and retail price for a pack of 20 cigarettes, the most sold brand" (indicator). WHO report on the global tobacco epidemic. Web Annex IX. 3 August 2021. Available: <https://www.who.int/publications/i/item/WHO-HEP-HPR-TFI-2021.9.1>

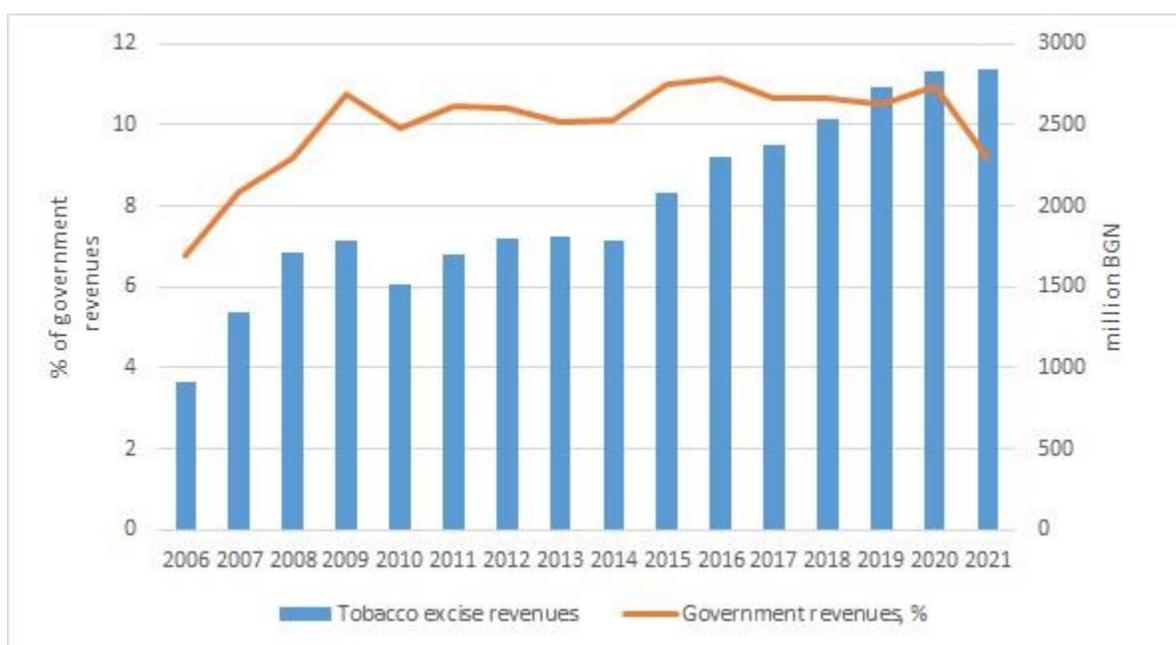
²⁵ Tobacconomics. (2022). "Cigarette Tax Scorecard: Spotlight on Southeastern Europe". Policy Brief, April 2022. Available: <https://tobacconomics.org/files/research/764/see-scorecard-policy-brief-2nd-edition-final.pdf>

Tobacco heaters remained free of excise. The beneficial tax regime has contributed to the fact that 21% of Bulgarians aged 25-39 have “at least tried” HTP, compared with 10% for the EU [Eurobarometer 2020].

Tobacco taxation in the Bulgarian government revenues

In 2021, the total revenues from excise duties on all types of tobacco products in Bulgaria were worth BGN 2.843 billion. As evident from Figure 5, for most of the observed years, tobacco excise duty was equal to over 10% of the government revenues. This share is several times higher than the EU average²⁶.

Figure 5 Share of tobacco excise revenues in the Bulgarian government revenues, in %



Source: Ministry of Finance, own calculations

Tobacco taxation in Bulgaria also includes the VAT on tobacco products. For 2020, the number of cigarettes taxed was 14.77 billion, and the average weighted price calculated by the Bulgarian Customs Agency was BGN 5.41 per 20 pieces. This resulted in BGN 663 million VAT revenues from tobacco products. Combined with the collected excise duty, indirect tobacco taxation generated BGN 3.493 billion, or **13.5% of all government revenues for the year** (tax revenues + non-tax revenues).

²⁶ European Commission. (2020). Evaluation of the Council Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco. Commission staff working document. Brussels. Available: <https://taxation-customs.ec.europa.eu/system/files/2020-02/10-02-2020-tobacco-taxation-report.pdf>

Such a fiscal dependency on tobacco consumption taxation conveys certain vulnerability. First, it might be expected that the convergence of Bulgaria towards the EU would result also in lower tobacco use. Second, due to the general demographic decline, the absolute number of tobacco users in Bulgaria is shrinking (to which tobacco consumption itself considerably contributes). Third, the consistent population aging pushes downward future tobacco tax revenues (with 84% of non-smokers after the age of 65).

The tobacco industry itself is already discounting the prospect of a sharp decline in cigarette sales. Euromonitor International forecasts a more than BGN 250 million decrease in the annual sales of cigarettes by 2026, partially offset by a BGN 100 million growth in novel tobacco products.

In order to collect the same revenues from the shrinking absolute number of tobacco consumers, governments might pursue different strategies. First, to increase the excise rates. Second, to broaden the tax base by adequate taxation of alternative tobacco products - smoking tobacco, HTP, e-cigarettes, etc. Third, by adding new smokers while keeping tobacco taxes low. During the last decade, Bulgarian governments mainly adhered to the latter.

Government policy on the excise duty of cigarettes

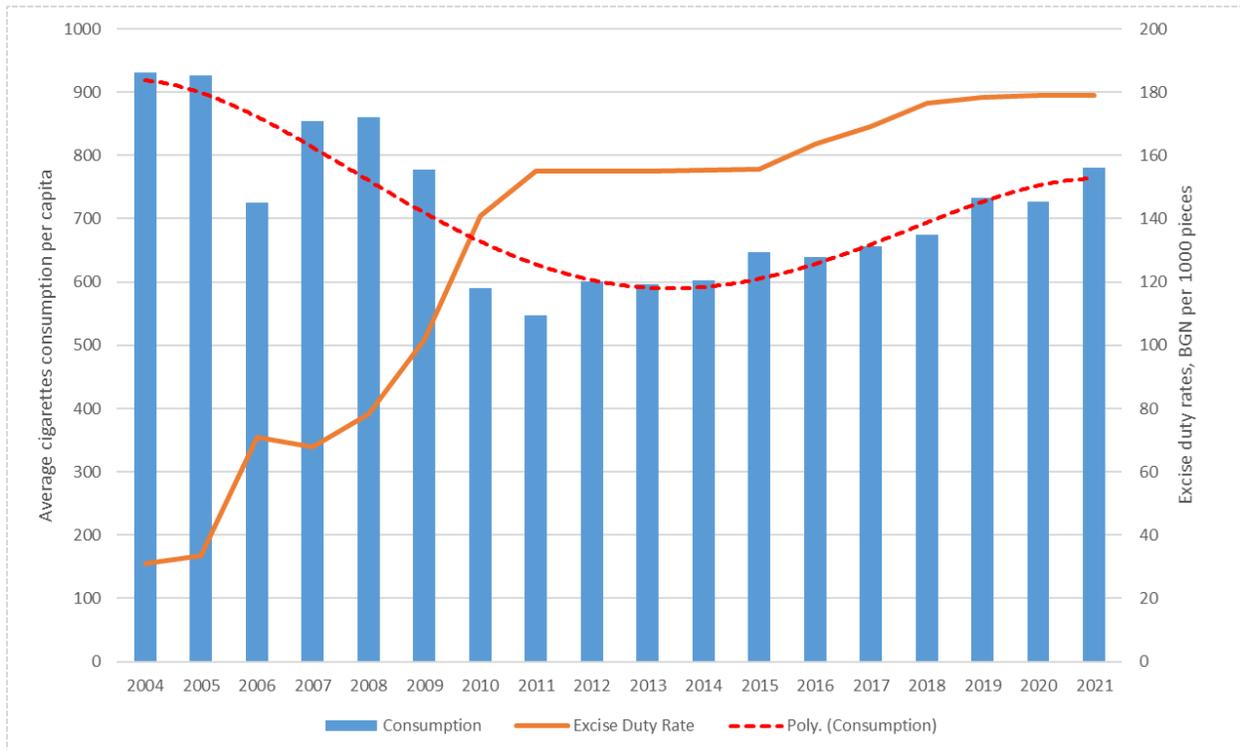
Cigarette excise duty in Bulgaria was raised above BGN 2 per pack only in 2009. The following year the minimal tobacco excise duty was increased by 38.8%, and again in 2011 to BGN 153.9 per 1000 pc. Thus in only three years excise duty rates grew by 96.3%. This move was motivated by various factors: the EU tobacco taxation policy, expected public health benefits, and the need for revenues during the financial and economic crisis. Yet the outcomes entirely contradicted the expectations of the Ministry of Finance. In 2010, tobacco excise revenues declined by BGN 272 million – in the face of a planned BGN 225 million positive effect.

This miscalculation stressed the already strained government budget and was widely criticized by the advocates of the tobacco industry²⁷. The “lessons learned” for the Bulgarian fiscal policy presumably was to stick to minimal increases of tobacco excise duty, stretched over long periods of time²⁸. The consequences of this abstaining from higher tobacco taxation are shown in Figure 6: **there is a clear link between stagnating tobacco excise duty and increasing the average consumption of cigarettes per head.**

²⁷ Ganev, P. (2013). Excise taxation of tobacco products in Bulgaria – review and recommendations. Sofia: Institute for Market Economy. A paper supported by Phillip Morris Bulgaria. Available: https://ime.bg/var/images/IME_excise_tobacco_report_2013_EN.pdf

²⁸ Institute for Market Economy. (2018). Economic analysis of the excise policy towards tobacco products in Bulgaria and its effects on the illicit trade. Sofia: IME. (In Bulgarian) Available: https://ime.bg/var/images/Excise_policy_tobacco_IME_18.pdf. This report, as several others, has been funded by the tobacco industry (PMI Impact) and concludes that any pronounced increase in excise duty will produce a “tax shock” in Bulgaria.

Figure 6 Excise rates (right axis) and average cigarette consumption (left axis) in Bulgaria



Source: National Statistical Institute (Households budgets survey), Customs Agency, own calculations

Tobacco excise rates and cigarette consumption per capita are indicators with opposite dynamics. When the government raised the excise duty, the national cigarette consumption per capita declined. The **excise duty plateau** after 2011 led to a slow but prolonged recovery of cigarette consumption.

Three major factors were in play during the decade that followed. First, the growing incomes of the population: the GDP per capita in constant 2020 prices rose by 51% between 2011 and 2021. Second, the reluctant taxation by the government: the average price of cigarettes sold on the Bulgarian market increased by only 7.6% during the studied decade. Thus cigarettes became far more affordable for the population and their per capita consumption increased by 42.7% in a decade.

Third, the government abandoned its quasi-toleration approach to the illicit trade of cigarettes from 2010-2014, with Bulgaria being lately praised by the tobacco industry as having eradicated illicit trade. The combined effect of all three factors pushed the government revenues from tobacco excise by 67.8% in ten years. In 2020, indirect tobacco taxation corresponded to not less than 2.9% of the Bulgarian GDP.

Knowing this, it becomes clearer why Bulgarian governments are reluctant to implement Article 53(3) of the national Health Act. According to it, the Ministry of Finance has to transfer 1% of all excise revenues collected from alcohol and tobacco products to national prevention programs of the Ministry of Health, including limiting smoking. Bulgarian governments have never fulfilled this legal requirement.

5. Price elasticity of tobacco consumption

The government's miscalculation of tobacco excise revenues in 2009 in the magnitude of BGN 0.5 billion revealed a lack of understanding of the basic mechanisms of price elasticity of tobacco use. Therefore, this study provided an independent estimation of the price elasticity of cigarette consumption in Bulgaria.

For this end, we built a simple linear regression model representing cigarette consumption as a function of their price and the incomes of the population. The model covered a period of 18 years (2004-2021). Annual data on tobacco consumption was derived from the Household Budget Surveys (HBS), in the form of pieces of cigarettes per capita. The HBS records all cigarettes purchased thus also the illicit market.

Two versions of the model were developed by using two different measures of cigarette price. The first version (Model1) tracked the current price of cigarettes (time series was constructed based on WHO and Custom Agency data) and then adjusted it with the Consumer Price Index recalculating it into constant BGN from 2020. The second version (Model2) tracked the relative price of cigarettes on the Bulgarian market by dividing the average weighted annual price indices of cigarettes (derived from the monthly tobacco price index of the NSI) by the weighted CPI for the respective year.

Gross Domestic Product per capita was used as an approximation for the changes in disposable incomes. The numbers of GDP per capita in current prices were transformed into constant 2020 Bulgarian lev. Before assessing the elasticities of price and income standard tests have been performed with the variables included in Model1 and Model2. We applied consequentially the procedure of the Augmented Dickey-Fuller test (ADF) in order to test the variables for the existence of unit roots provoking spurious regression. None of the variables were stationary at the level yet all variables passed the t-test at their first differences when accounting for a drift.

We proceeded with the two-step Engle-Granger method testing the residuals of the linear model. For Model1, $Z(t) = -3.198$; and for Model2, $Z(t) = -3.269$. Thus in order to check the hypothesis of cointegration between variables we applied the alternative Johansen test. Its results implied that indeed there exist long-term relationships between the time series.

Therefore, we could estimate their long-run and short-run linear relationships following the Error Correction Model. The long-run linear model regressed the logarithmic values of cigarette consumption per capita, the price of cigarettes, and the real GDP per capita.

As evident from the first part of Table 1, the coefficient of the long-term price elasticity of cigarette consumption is statistically significant for both versions of the model. For Model1, it amounts to -0.737; and for Model2 -0.826. One might expect that in the long term, with each increase in the price of cigarettes by 1% their consumption will decrease by roughly 0.74-0.83%, all other things being equal.

As regards the income elasticity of cigarette consumption, its coefficients are statistically significant and equal to 0.657 (Model1) and 0.618 (Model2). In other words, in the long run, a 1% increase in incomes will lead to 0.62-0.66% increase in cigarette demand.

Table 1 Estimations of the long-run and short-run elasticity of cigarette consumption in Bulgaria

	Model 1			Model 2		
Long-run elasticity	Prob > F = 0.0000 R-squared = 0.8566 Adj R-squared = 0.8374			Prob > F = 0.0000 R-squared = 0.9348 Adj R-squared = 0.9261		
	<i>Coefficient</i>	<i>P > t </i>	<i>95% Conf. Interval</i>	<i>Coefficient</i>	<i>P > t </i>	<i>95% Conf. Interval</i>
Price	-0.737085	0.000	-0.912459 / -0.561711	-0.8265288	0.000	-0.9333176 / -0.6587895
Income	0.6576793	0.000	0.3922393 / 0.9231193	0.6179769	0.000	0.4489992 / 0.7869547
Short-run elasticity	Prob > F = 0.0001 R-squared = 0.7910 Adj R-squared = 0.7427			Prob > F = 0.0000 R-squared = 0.8896 Adj R-squared = 0.8641		
	<i>Coefficient</i>	<i>P > t </i>	<i>95% Conf. Interval</i>	<i>Coefficient</i>	<i>P > t </i>	<i>95% Conf. Interval</i>
Price	-0.5709532	0.000	-0.7910508 / -0.3508557	-0.730292	0.000	-0.8965973 / -0.5639867
Income	0.114024	0.778	-0.7418776 / 0.9699256	0.3529108	0.234	-0.2579532 / 0.9637748
Residuals /L1/	-.8510633	0.003	-1.348093 / -0.3540336	-0.7512305	0.009	-1.28488 / -0.2175809

Source: Own calculations

We estimated the short-term elasticities by regressing the first differences of the series and the one-term lagged residuals of the model. The short-term elasticities of price turned out to be lower than the long-term ones. That is, the initial reaction of limiting consumption when raising the price is weaker than the long-term consumption effect of the price. As with the long-run model, the short-term price elasticity coefficient estimated by Model2 was higher than that of Model1 (respectively -0.73 and -0.57).

Income is not a statistically significant factor in both models in the short term. The coefficients of the residuals are statistically significant and fall in the interval between 0 and -1. They indicate that a major part (75% according to Model2 and 85% according to Model1) of the long-run disequilibrium would disappear within a year.

It is worth mentioning at this stage that an earlier study based on micro data from 2002²⁹ has reached comparable results for the price elasticity of cigarette consumption in Bulgaria: -0.802 general price elasticity, with -1.329 for the low and low-middle income; -1.016 for the high-middle income; and -0.518 for the high-income groups. Recent studies from neighboring Balkan countries have calculated similar price elasticity coefficients³⁰.

²⁹ Sayginsoy, O., Yurekli, A. A., & de Beyer, J. (2002). Cigarette Demand, Taxation, and the Poor: A Case Study of Bulgaria. UCSF: Center for Tobacco Control Research and Education. Available: <https://escholarship.org/uc/item/35g997q4>

³⁰ Zubovic, J. et al. (2018). Economics of Tobacco and Tobacco Taxation. National Study – Serbia. Belgrade: Institute of Economic Sciences. Available: https://tobaccotaxation.org/cms_upload/pages/files/National-study-Serbia.pdf; Cizmovic, M. et

After estimating the long-run and the short-run elasticity of cigarette consumption in Bulgaria we run a series of post-estimation tests (Breusch-Pagan Test, Breusch-Godfrey Test, Ramsey's RESET Test, Bartlett's White Noise Test, Portmanteau Test, Variance Inflation Factor, and Skewness/Kurtosis Test). These tests proved the robustness of both versions of the model, with the exception of the Skewness/Kurtosis test not confirming the normal distribution of the residuals of Model1 (Prob>chi2 = 0.0303; though the test is not conclusive due to the small sample). This fact, together with the higher VIF of Model1 and some other indicators, supported our preference for Model2.

Statistical analysis confirmed that the growing incomes of the population contribute to higher consumption of cigarettes; thus in a growing economy **excise duty has to be constantly raised in order to preserve the effectiveness of tobacco taxation as a measure of tobacco control.**

In Bulgaria, indirect taxation is responsible for a high share of the retail price of tobacco products. Thus it might be expected that any increase in excise duty will be passed to the consumers. Supposing that all of the increase in excise duty will be transferred into the retail price of cigarettes, and all other things being equal, we calculated the expected outcomes on consumption and tobacco tax revenues of raising the specific excise rate by 10%, 20%, 30%, and 50%. We supposed that the ad valorem component of the excise duty will remain flat (25% of the retail price). We calculated the consumption and tobacco tax revenues effects for both versions of the model: Model1 (-0.737 long-term price elasticity) and Model2 (-0.826 long-term price elasticity). The results are presented in Table 2.

Table 2. Expected outcomes of raising the specific excise duty rate in Bulgaria

Model1	As of 2021	10% increase	20% increase	30% increase	50% increase
End price, BGN	5.41	5.78	6.16	6.53	7.28
Change in the end price, %		6.84	13.86	20.70	34.57
Consumption, packs	760265000	721557000	682849000	644141000	566725000
Change in consumption, %		-5.09	-10.18	-15.27	-25.46
Excise revenues, million BGN	2720	2774	2837	2877	2884
Change in excise revenues, %		1.97	4.32	5.78	6.05
Tobacco tax revenues (Excise + VAT)	3406	3469	3538	3579	3572
Change in tobacco tax revenues, %		1.86	3.89	5.07	4.88
Model2	As of 2021	10% increase	20% increase	30% increase	50% increase
End price, BGN	5.41	5.78	6.16	6.53	7.28
Change in the end price, %		6.84	13.86	20.70	34.57
Consumption, packs	760265000	716883000	673500000	630118000	543354000
Change in consumption, %		-5.71	-11.41	-17.12	-28.53
Excise revenues, million BGN	2720	2756	2799	2815	2765

al. (2018). The elasticity of tobacco products. Podgorica: Institute for Socio-Economic Analysis. Available: http://tobaccotaxation.org/cms_upload/pages/files/201802-Montenegro.pdf

Change in excise revenues, %		1.31	2.89	3.48	1.67
Tobacco tax revenues (Excise + VAT)	3406	3447	3490	3501	3425
Change in tobacco tax revenues, %		1.2	2.46	2.78	0.55

Source: Own calculations

These calculations are tentative since they do not account for many economic and policy factors but they indicate that Bulgarian authorities have ample room to raise the tobacco excise duty rates before it would negatively impact the public revenues – while the consumption would decline thus benefitting public health. For instance, a 20% increase in the specific excise rate would result in 84-132 million BGN higher government revenues along with 77-87 million fewer packs of cigarettes consumed.

Conclusions and policy recommendations

Tobacco consumption in Bulgaria is elevated, and it is growing. Yet this is not a natural development but an outcome from two harmful complementary factors observed in Bulgaria:

1. The tobacco industry’s strategy of selling its products in Bulgaria at a lower price has helped to maintain a large customer base (and corresponding revenues); and
2. Bulgarian governments persistently support the lowest possible (under the EU law) tobacco taxation thus reinforcing the effects of the first factor.

Both factors directly contribute to greater affordability of tobacco products in Bulgaria, and as a result the national tobacco prevalence is highly elevated. The record high mortality and shortened life expectancy at birth are logical consequences.

Taxation is the major single tool for limiting tobacco use³¹. Yet in order to be effective it has to be part of a comprehensive public policy on tobacco control. For its part, this requires a government truly committed to public health, as well as efficient law enforcement.

Tobacco taxation has been popularly interpreted by Bulgaria’s policymakers as a source of greater public revenues. It involves safeguarding these revenues by all means by neglecting stricter tobacco control measures. This approach is applicable only in the short and medium term, and does not take into account the various economic costs of tobacco consumption.

³¹ Chaloupka, F. (2017). Tobacco tax increases remain the most effective policy for reducing tobacco use. A Tobacconomics Research Brief. Chicago: Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois. Available: https://tobacconomics.org/uploads/misc/2017/11/effectiveness-of-tobacco-taxes_brief.pdf

This study is only the first step in a long and urgent journey in the uncharted territory of tobacco economics in Bulgaria. It suggests that **more research is needed** in the following aspects:

- To evaluate the economic costs of tobacco consumption for the economy and society.
- To investigate the crowding-out effects of tobacco consumption.
- To estimate the elasticity of tobacco consumption of different income groups.
- To suggest more effective mechanisms for taxing tobacco products.

Based on the findings of this report, our suggestions for the policy **measures needed** for more effective tobacco control in Bulgaria are as follows:

1. The government has to put in place an ambitious and comprehensive strategy for gradual increasing of tobacco taxation for the next 3 to 5 years.
2. The increases in tobacco taxation have to be steep enough to achieve a tangible drop in affordability and consumption of tobacco products.
3. The government should implement an action plan to offset any side effects of increased tobacco taxation. For example, the authorities have to develop the capacity to assess the general scope of the illicit trade in tobacco products. Another valuable option is to fund free cessation programs for low-income smokers.
4. The government should adopt comprehensive measures to monitor and control the entire tobacco supply chain.
5. Taxation levels for all nicotine containing products have to be equalized.
6. As stipulated by the Bulgarian Health Act, a fraction of tobacco excise revenues has to feed in a specially designated fund for tobacco prevention.