



**Taxation of the non-alcoholic beverages with
excise tax in the Baltic countries**

**Potential broadening of the tax base to food
products high in sugar and salt**

Report

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List of abbreviations

CSDs	Carbonated soft drinks
EU	European Union
g	gram
GDP	Gross Domestic Product
kg	kilogram
l	litre
mg	milligram
ml	millilitre
mln	million
OECD	The Organisation for Economic Co-operation and Development
PHPT	Public health product tax
PPP	Purchasing Power Parity
SRS	State Revenue Service of Latvia
VAT	Value Added Tax
WHO	World Health Organization
WAP	Weighted average retail price

Executive Summary

Overweight and obesity, along with an unbalanced diet and low physical activity, are significant public health issues contributing to various chronic diseases such as cardiovascular disease, type-2 diabetes, hypertension, coronary heart diseases and certain cancers. For specific individuals, being overweight may further be linked to a wide range of psychological problems. Overweight and obesity rates are extremely high in all EU countries. In the EU in 2022 more than half of the adult population aged 18 and over (51.3%) considered overweight (including pre-obese and obese)¹. **Latvia has the 2nd highest proportion of overweight people in the EU (60.4%). In Estonia and Lithuania, the proportions are also relatively high (57.4% and 59.4% respectively and the 5th and 10th positions among the EU-27 member states).**

This issue puts a considerable strain on health care and social resources and **is a high priority on the policy agenda in Latvia.** In early September 2024, the Ministry of Health of the Republic of Latvia drafted "The Action Plan for Reducing the Growth in the Prevalence of Overweight and Obesity for 2025–2029" and opened it for public discussion. Recognizing that the development of overweight and obesity has multifactorial causes, a comprehensive approach is required to effectively tackle this problem, involving experts from various fields and addressing the issue from multiple perspectives. Excise tax could be considered as one of the tools in a complex approach to discourage excessive consumption of foods and beverages high in sugar and salt, encourage a balanced diet and promote positive health outcomes.

This report aims to analyze the use of excise taxes on non-alcoholic beverages in Latvia and other EU member states and explore the potential for expanding these taxes to other sugar and salt-rich products in the Baltic countries. The focus is on evaluating the implications of such taxes from the point of view of state revenues, public health, consumer welfare, and other policy objectives, such as incentivizing product reformulation, and developing recommendations on excise tax policy.

Sugar intake

Based on EFSA (EFSA Panel on Nutrition, Novel Foods and Food Allergens, 2022) data, **the major contributor to the intake of added sugars** in nearly all European countries **is sugar and confectionery**, ranging for adults aged 18–64 years from 20% in Austria to 57% in Italy (48% and 54% in Latvia and Estonia respectively). For children aged 1–18 years sugar and confectionary contribute to 36–44% of added sugar intake in Latvia and 38–49% of added sugar intake in Estonia.

In Latvia, sugar and confectionery are followed by **fine bakery wares** (25% for adults aged 18–64 years and 16–23% for children aged 1–18 years) and processed fruits and vegetables (9% for adults aged 18–64 years and 10–16% for children aged 1–18 years). A significant source of added sugar for toddlers is **dairy products** (21%). **In Latvia, the contribution of sweetened soft and fruit drinks to total added sugar intake is 8% for adults aged 18–64 years and 3–7% for children aged 1–18 years.**

¹ Eurostat based on data collected via EU-SILC (Statistics on Income and Living Conditions).

In Estonia the major contributor – sugar and confectionery – is followed by processed fruits and vegetables excluding beverages (11% for adults aged 18–64 years and 7–14% for children aged 1–18 years) and dairy products (11% for adults aged 18–64 years and 11–22% for children aged 1–18 years, with a higher proportion for younger children). **In Estonia, the contribution of sweetened soft and fruit drinks ranges from 10% for adults aged 18–64 years to 17–21% for adolescents aged 10–14 years (the proportion is slightly lower for children in other age groups: 16% for children aged 14–18 years and 11–12% for children aged 1–9 years).**

Consumption of non-alcoholic beverages

In 2023 in the Baltic countries per capita sales of soft drinks (non-alcoholic drinks excluding packaged water, dilutables and juice & nectars) accounted for 74.8–76.1%² of the EU average level (UNESDA, 2024). The share of light (no- and low-calorie) carbonated soft drinks (CSDs) in total sales of CSDs has been gradually increasing in all three Baltic countries suggesting a shift towards healthier, lower-sugar beverage options.

According to the State Revenue Service of Latvia (2024), 66.3% of soft drinks released for consumption in 2023 contained less than 8 g sugar per 100 ml. In 2022, this proportion was 63.2%, so one could assume that this proportion will continue to grow.

Salt intake

WHO recommends less than 5 g per adult per day of salt intake. According to the WHO (2023a) estimate, in 2019 the salt intake in Latvia and Lithuania is much higher than recommended: 7.6 g/day of salt and 7.4 g/day of salt respectively. Among the Baltic countries, the salt intake in Estonia is the closest to the recommended one: 5.7 g/day of salt. However, recent national studies conducted in Estonia and Latvia report higher salt consumption of Estonians and Latvians than is estimated by the WHO (2023a).

Taxation of non-alcoholic beverages

As of 2024 Latvia is the only Baltic country taxing consumption of non-alcoholic beverages with added sugar, other sweeteners, or flavouring. The tax was introduced in 1999 and was mainly motivated by the budget's financial needs. Until 2022, the applicable tax rate was EUR 7.40 per 100 litres of a beverage. In 2022, the tax was differentiated based on sugar content, with a higher rate applied to beverages containing more than 8 g of sugar per 100 ml. Since 2022, the tax rate for beverages with higher sugar content was increased by 25% in March 2024 and will be increased again by 20% in January 2026. The increase of the excise duty on non-alcoholic beverages in 2024 is one of the compensatory measures for setting a reduced rate of VAT at the 12% for fresh fruits and vegetables until the end of 2024.

In Europe as of 2024 taxes on sugar-sweetened non-alcoholic beverages are implemented in 14 countries – Belgium, Croatia, Finland, France, Hungary, Ireland, Latvia, Malta, Netherlands,

² Estonia: 74.8%; Latvia: 76.1%; Lithuania: 75.8%.

Poland, Portugal, Romania, Spain (excise tax is applied in the Catalonian region of Spain and the increased VAT rate is applied all over Spain) and the United Kingdom.

Estonia planned to introduce a tax on sugar-sweetened non-alcoholic beverages in 2026 to reduce the use of sugar and sweeteners in sugary drinks. However, the tax implementation was cancelled by the coalition of a new government in July 2024. In some other European countries, the debate about the need for such a tax is ongoing (Norway, Luxembourg, Netherlands) or a law on the introduction of the tax has already been passed and is awaiting its implementation (Slovakia, Italy, Czech Republic).

Taxation of products with high level of sugar, salt and saturated fats

As of 2024, Hungary is the only country in Europe imposing a tax on non-alcoholic beverages and food products with a high saturation of fats, salt and sugars. Another example of taxation of sugary products which is different from taxation of other food products, is Romania, which in 2024 increased a VAT rate up to 19% (previously 9%) for food products with the total sugar content of which is at least 10 g/100 g of product, other than bread and biscuits as well as alcoholic drinks and non-alcoholic beer.

Other examples worth to mention are Finland and Denmark. The sweets tax in Finland was applied to confectionery, chocolate and ice cream, while excluding bakery products, yoghurt, puddings and other such products. In 2017, the sweets tax was abolished because of a warning from the European Commission that the tax is incompatible with EU State aid rules. The tax on saturated fat (applied to meat, dairy, edible oils and fats, margarine and blended spreads, among other items) was introduced in Denmark at the end of 2011 and was abandoned a year later due to adverse effects on cross-border shopping, competition and employment.

Price and tax levels of soft drinks

We compare price levels (PPP-adjusted) for 330 ml of an internationally comparable brand of sugar-sweetened carbonated beverage using the tax rates in force as of July 2024. For this comparison, we use data on prices collected by WHO (2023c) in July 2022 – June 2023.

After adjusting for differences in purchasing power, in Latvia the PPP-adjusted price was the 5th highest in the EU (PPP\$ 1.78), while Estonia is ranked the 4th (PPP\$ 1.81). Lithuania takes the 15th position with a PPP-adjusted price of \$1.27. The median retail price for the selected type of beverage in the EU was PPP\$ 1.35.

The excise tax share in the retail price of selected type of beverage varied from 1.8% to 11.3% in the EU with the median excise tax share equal to 6.2%. PPP-adjusted excise tax levels were highest in Poland (PPP\$ 0.14 or 8.8% of retail price) and Portugal (PPP\$ 0.14 or 10.1% of retail price). In Latvia, PPP-adjusted excise tax level was equal to the median excise tax level of EU countries (PPP\$ 0.09).

The VAT share in the retail price of the selected type of beverage varied from 2.9% to 21.3% in the EU with the median VAT share equal to 17.4%. Estonia had the 3rd highest PPP-adjusted VAT level (PPP\$ 0.33 or 18% of the retail price) and Latvia had the 6th highest PPP-adjusted VAT level

(PPP\$ 0.31 or 17.4% of retail price). Lithuania is ranked 13th among the EU countries with the PPP-adjusted VAT level equal to the median in the EU (PPP\$ 0.22 and 17.4% of retail price).

The total tax burden (excise tax and VAT) of the selected sugar-sweetened carbonated beverage in the EU varied from 2.9% to 30% of the retail price. The median tax share was 17.6% of the retail price and the median amount of indirect taxes in the EU was PPP\$ 0.22. **In Latvia the total PPP-adjusted amount of indirect taxes was the 3rd highest in the EU (PPP\$ 0.40 or 22.2% of the retail price). Estonia and Lithuania were ranked at the 9th and 14th positions respectively³.**

Compatibility with the EU State aid rules

The tax applied on food products high in sugar and salt should be compatible with EU State aid rules. According to the European Commission, any tax measure that favours certain undertakings or the production of certain goods over others, which are comparable (or contain just as much sugar or salt), constitutes state aid (Confectionery News, 2016). Favouring some products over others through taxation is allowed only if can be justified by reasons of general economic development. Thus, taxing standalone products with high sugar content like confectionary is not allowed. There is an exception permitting taxation of soft drinks. In favour of taxing soft drinks without taxing other foods with a high sugar content, the Commission (European Commission, 2018) notes that soft drinks are the major source of calories with no nutritional value. Soft drinks are believed to lead to excessive consumption and pose a higher risk of obesity also compared to other solid food. However, to our knowledge, there are no studies assessing the changes in sugar intake caused by the soft drinks tax taking into account possible substitution with other sugar-rich products.

International evidence on effectiveness of taxes in reducing consumption

Evidence from other countries shows that imposing excise duties on soft drinks with added sugar are effective in reducing consumption of these drinks, if the price changes caused by the tax are sufficiently large. At the same time, the evidence on effectiveness of taxes in reducing sugar intake is inconclusive. According to New Zealand Institute of Economic Research (NZIER, 2017), studies which use sound methods report a reduction in sugar intake that is likely to be too small to generate health benefits and that can easily be cancelled out by substitution with other caloric products. On the other hand, studies reporting a considerable change in sugar intake assume no compensatory substitution. Abundance of substitutes with not only high sugar levels but also fats creates a risk that any potential benefits from the tax are overturned, and makes it hard to evaluate the true effect on health outcomes.

The McKinsey Global Institute (MGI, 2014) studied 44 possible interventions aimed at changing consumer behaviour to address the problem of growing obesity in the world, and estimated potential costs of implementing such interventions. One of MGI main findings is that **no single solution will be good in a fight with obesity, interventions should be used jointly within a systematic and comprehensive programme**. In addition, they concluded that **the most effective**

³ Estonia: PPP\$ 0.33 and 18% of retail price. Lithuania: PPP\$ 0.22 and 17.4% of retail price.

tools to reduce obesity is to reduce portion size (“encouraging appropriate consumption through incremental (i.e., 1% to 5%) reductions in portion sizes and designing packaging to better delineate portion size to help moderate consumption”) **and to reformulate the product** (incremental reduction of calories in food products to drive subconscious reduction in consumption), while introduction of the tax scored only 13th out of 16 intervention areas.

Hungarian public health product tax (PHPT), imposed on a wide range of non-alcoholic beverages and food products with a high saturation of fats, salt and sugars (methylxanthine, taurine, ginseng, larginine in case of energy drinks), is recognized by WHO (2015c) as an example of successful intersectoral action using a fiscal tool to promote healthier food choices and raise revenues for public health, making it a key case study in using fiscal policies to improve public health outcomes. Beyond increasing prices, the tax raised awareness about unhealthy foods and shifted consumer behavior towards healthier choices. Successful implementation required cooperation across sectors, including public health experts, the Ministry of Health, the Ministry of Finance, and the WHO, to develop and refine the policy. The tax was refined multiple times after its initial implementation to address loopholes and ensure effectiveness, particularly against superficial recipe changes aimed at tax evasion. Since implementation of the PHPT, post-evaluation of tax impact was conducted at least 2 times. The assessments conducted a year and three years after implementation confirmed that the PHPT successfully met its public health objectives by reducing the consumption of taxed products. However, study of Berezvai et al. (2024) covering the period from 2010 to 2018, found that while the PHPT initially reduced the consumption of unhealthy foods, this effect diminished over time as disposable incomes grew.

Cross border sales of products and soft drinks high in sugar

There is no evidence so far that people in the Baltics are going to neighbouring countries to purchase soft drinks. However, experience from Norway and Denmark shows that consumers are prepared to cross borders to buy sugary food and soft drinks where a significant price difference exists. Given high volumes of cross-border trade, the true effect on consumption of the taxed goods is hard to estimate. The experience of these two countries also highlights the importance of excise tax policy coordination across neighbouring countries as a tool for reducing cross-border trade and improving efficiency of excise tax.

Short-term and long-term impacts on employment

When estimating the overall effect of excise taxes on food products rich in sugar or salt, it is important to account for possible negative impacts on profits, output and employment of domestic manufacturers in the short run. The tax increases reduce the sales and can result in significant job losses for those who manufacture, distribute and sell these products. However, the net impact of excise tax policies on national employment depends on the magnitude of both job losses in the taxed sector and job gains elsewhere in the economy as some consumers reallocate their spending to other goods and services and governments spend the additional tax revenues raised from tax increases. Furthermore, excise taxes on soft drinks and food products high in sugar and salt, by reducing consumption of taxed products, lead to a reduction of diseases related to obesity and other noncommunicable diseases and therefore to a decline in health care expenditures attributable to

treatment of the respective diseases. Resources not spent on health care would be ultimately allocated to the consumption of other goods and services and create alternative jobs in other sectors of the economy. Important to note that decreased consumption of heavily taxed products could be at least partially offset by increased consumption of less taxed (relatively cheaper) or untaxed products, which are often produced by the same companies or start to be produced if companies opt to reformulate their products in order to minimise the decline in sales volume (Chaloupka F.J. et.al., 2019).

Study from the United States found that reduction in consumption of sugar-sweetened beverages due to higher taxes have either no effect or a net positive effect on overall employment (Powell L.M., 2014). It used a macroeconomic simulation model which accounts for changes in product demand, average state income, and substitution effects. This study concludes, that a 20% increase in sugar-sweetened beverage taxes in 2 states results in net change in employment close to zero, as declines in employment within the beverage industry were offset by new employment in other industries and government sectors.

Results of econometric analyses

Motivated by the evidence of Hungary, we simulate the short term-impact of the introduction of the differentiated broad-based tax on food products high in sugar and salt using the approach applied in Pluta et. al (2020). First, we use monthly data on sales and prices of soft drinks and food products of selected categories in the modern trade retail market in 2019–2023 to estimate the price elasticity of demand in the Baltic countries. Modern trade retail market includes supermarkets, hypermarkets, and large-format stores. Data is obtained from AC Nielsen. Second, we simulate different scenarios to assess increase in price, reduction in sales and budgetary effect using the estimated elasticities and assuming different degrees of tax pass-through rate to retail prices. Note that our results represent a short-term or direct fiscal effect, so that we do not account for any second-round effects that can arise from changes in domestic production, employment and therefore other tax revenues.

Currently Hungary is the only country in Europe imposing the tax on the pre-packaged food products with a high saturation of fats, salt and sugars. This tax has been successfully applied since 2011 (see section 3.2 on the effectiveness of the PHPT). Therefore, defining the scenarios that are considered when modelling the introduction of the new tax in the Baltic counties, we use the Hungarian PHPT as a good practice example. As a basis we use the list of product categories under taxation by the PHPT, two-tier tax system and the PHPT rates as of 2024 (see Section 3.3). In addition, we are also looking at other product categories (such as sugar sweetened dairy products, sweetened cereals and vegetables and beans containered), expanding the tax base even more.

In total we analyse one scenario for taxation of soft drinks and four alternative scenarios for taxation of food products high in sugar and salt.

Scenario considered for soft drinks

We simulate the increase of excise duty on non-alcoholic beverages in Latvia (increase of a high rate from EUR 14 to EUR 17.5 per 100 litres). That is how much the tax rate has been raised for

soft drinks with a sugar content above 8 g per 100 ml in March 2024 in Latvia. For Lithuania and Estonia, we simulate the introduction of the excise duty applying the same two-tier tax system that was in force in Latvia as of March 2024. Then we estimate the magnitude of the sales decline and the fiscal effect from such policy.

We do not simulate higher rates of excise duty to apply to non-alcoholic beverages because the tax burden in Latvia is already very high compared to other EU-27 countries: in 2024 in Latvia the total PPP-adjusted amount of indirect taxes was the 3rd highest in the EU (PPP\$ 0.40 or 22.2% of the retail price).

Scenarios considered for food products high in sugar and salt

Scenarios 1 – 4 consider a two-tier tax system for almost all food categories high in sugar and salt (except condiments for which only a high rate is applied due to the high salt content, similarly as in Hungary). Scenarios differ from each other in the applicable rates.

Scenario 1 foresees that the low and high rates, applied to food products, are equal to the low and high rates applied to non-alcoholic beverages in Latvia as of March 2024, namely the low rate is EUR 7.40 per 100 kg if the salt or sugar amount in the food product is considered as low and EUR 17.5 if the salt or sugar content is considered as high.

In **scenario 2** the low and high rates applied to food products are equal to the PHPT rates as of 2024. In **scenario 3** the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in **scenario 4** the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024.

In providing the lower bound of the interval, we assume that 100% of sales of a particular product or drink are subject to the new tax, but the amount of sugar and salt is considered as low and therefore a lower rate is applied.

In providing the upper bound of the interval, we assume that 25% of sales of a particular product or drink are subject to the new tax, but the amount of sugar and salt is low and therefore a lower rate is applied. The remaining 75% of the sales volume is also subject to the new tax, but the amount of sugar and salt is high and therefore a higher rate is applied to them.

Results: soft drinks

Summing up the estimations for all soft drinks, in case of a 100% tax pass-through, such a reform could lead to a 1.8% increase in soft drink prices in Latvia (considering only soft drinks subject to excise duty), 15.2% and 10.8% in Lithuania and Estonia respectively⁴. The price increase in Estonia is smaller than in Lithuania because prices for soft drinks in Estonia are higher and therefore the excise duty accounts for a smaller part of the price. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

⁴ The price increase in Estonia and Lithuania is higher than in Latvia, because for these countries we simulate a new tax on soft drinks, while for Latvia we simulate an increase in the existing tax.

The largest fall in sales of soft drinks subject to excise duty (11.2–13.3% in case of tax pass-through rate of 100% and 5.6–6.7% in case of tax pass-through rate of 50%) would take place in Lithuania since the price increase would be the highest. In Estonia, sales of soft drinks would fall by 6.7–7.7% in case of tax pass-through rate of 100% and by 3.3–3.9% in case of 50% tax pass-on to consumers. In Latvia, where excise duty has already been applied for more than two decades, sales volumes of soft drinks would decrease the least compared to other Baltic countries – by 1.2– 1.3% in case of tax pass-through rate of 100% and by 0.6–0.7% in case of tax pass-through rate of 50%

The introduction of excise tax on soft drinks is expected to generate EUR 17.9–19.9 mln in Lithuania and EUR 9.5–10.0 mln in Estonia annually. In Latvia the increase in the revenue from excise duties is estimated in the amount of EUR 1.5 mln.

Results: food products high in sugar and salt

According to our estimations, application of excise tax on food products high in sugar and salt could lead to price increase and sales decrease of taxed food products with magnitude depending on the type of food product (i.e., average retail price in the country) and scenario assumed (i.e., tax rates). The largest impact is expected for ready-to-eat and instant food and condiments. This is explained by the fact that we simulate one high rate applicable to them (not a two-tier system), as in Hungary.

In scenario 1, application of excise tax on food products high in sugar and salt is expected to generate EUR 5.3–10.6 mln in Latvia, EUR 9.9–19.7 mln in Lithuania, EUR 6.6–11.9 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive, below or close to EUR 1 mln).

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. The introduction of excise tax on food products high in sugar and salt is expected to generate EUR 10.2–34.9 mln in Latvia, EUR 19.3–64.0 mln in Lithuania, EUR 11.9–39.9 mln in Estonia (in case of tax pass-through rate of 100% and slightly higher amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive, below or close to EUR 3 mln.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, potential revenues from excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is mostly positive, below or close to EUR 4 mln.

Policy recommendations

- The evidence on the effectiveness of taxes on soft drinks in reducing sugar intake is inconclusive. At the same time, the experience of other countries suggests that **a sugar tax is effective in reducing sugar and calorie intake when imposed on a wide range of products**, as opposed to a tax on a few products, which induces consumers' switching to other foods with added sugar, salt and fats. To address the problem of growing obesity and

other noncommunicable diseases via application of excise duties on soft drinks, it is important **to carry out a public health study assessing the changes in sugar intake caused by the soft drinks tax considering possible substitution with other sugar-rich products.** The results of the study may justify the need to broaden the tax base to sugar-rich products.

- Policymakers could consider a comprehensive policy approach to reducing overweight and obesity of population. **Excise taxation should not be the only tool used to reduce the consumption of the excise products.** According to The McKinsey Global Institute (MGI, 2014), the most effective tools to reduce obesity include **reformulation of the products in manufacturing and switching to smaller packages (portion control) in retail.** Reformulation helps reduce unhealthy food availability and potentially lowers healthcare costs related to diet-related diseases.
- International evidence shows that in response to the government decisions to introduce or increase the excise duty on soft drinks, many companies opt to reformulate their products by reducing sugar content to reduce the decline in sales. Reaching an agreement with manufacturers on a reduction of sugar, salt and saturated fat content in food products and non-alcoholic beverages is one of the ways how to achieve reduction in the consumption of certain products and promote healthy eating habits among the population. This expands the opportunities for population to purchase healthier food products. As of September 2024, all the Baltic countries managed to reach such a voluntarily agreement (Latvia in 2022, Lithuania in 2018⁵, Estonia in 2019⁶).

As of September 2024, 12 Latvian manufacturers of food products and non-alcoholic beverages joined the cooperation memorandum on reformulation of food products and beverages signed by the Ministry of Health, the Latvian Food Enterprise Federation, the Latvian Chamber of Commerce and Industry (LTRK) in February 2022⁷. By joining, participants commit to reducing the amount of salt, sugar or saturated fatty acids in their products, thereby promoting the availability of healthy nutrition for the population. The memorandum includes such groups of food products as meat and fish products, cereal products, products made from fruits and vegetables, frozen ready-made food, dairy products, sweets, beverages, potato products, and baby food products.

Importers and some domestic manufacturers of food products and non-alcoholic beverages may not be covered by the agreements reached between the government and manufacturers, and they also may not voluntarily commit to reducing sugar in their food products and non-alcoholic beverages and/or reducing portion sizes. Because of this, and considering that a sugar tax is shown to be effective in reducing sugar and calorie intake when imposed on a wide range of products, **policymakers could consider introducing an excise duty on a broad range of sugar-rich and salt-rich food products and non-alcoholic beverages, while differentiating the duty rate according to sugar and salt content in a product.**

⁵ <https://lithuaniantribune.com/health-minister-sees-no-sense-in-sugar-tax-amid-plans-to-improve-product-contents/>

⁶ The goodwill agreement was achieved on added sugar content reduction in food products and beverages. Available: <https://www.err.ee/929457/kummekond-tootjat-piirab-lisatud-suhkru-hulka-oma-toodetes>

⁷ The Ministry of Health of the Republic of Latvia. The cooperation memorandums. Available: <https://www.v.m.gov.lv/lv/sadarbibas-memorandi>

Policymakers could consider to apply a multitiered tax structures⁸ (with more than two rates) based on the sugar and salt content and to provide a 100% relief for innovative products such as light (no- and low-calorie) soft drinks, water with natural flavouring, sugar-free or low-sugar snacks. Differentiated tax rate would stimulate the industry to drive down sugar and salt content in their products, i.e., offering sugar and salt-reduced options. Application of excise taxes to wide range of sugar and salt-rich products may bring additional resources to the state budget.

- **Policymakers could incentivize manufacturers and give them sufficient time to reduce sugar in their products that could lead to significant reductions in sugar and salt consumption without negatively affecting sales.** However, reformulation efforts are likely to vary across firms depending on production cost constraints, consumer attachment to beverage taste, brand portfolios, competitive positions, and relationships with distributors and bottlers. There is a concern about the potential harm to local businesses. In the Baltic countries, the market share of soft drinks, food products high in sugar and salt produced by local manufacturers is relatively small compared to that of large international companies, which have much greater resources to adapt their recipes and adjust production more quickly.
- An important role in the reduction of sugar and salt consumption comes from higher awareness of negative health outcomes caused by excessive sugar and salt intake. **Policymakers could consider different ways to draw consumers' attention to the sugar content in food products and beverages.** For example, products and beverages can be divided into 3 groups according to sugar content – rich, medium, and low sugar content – and **each group can be labelled uniformly.** Research evidence indicates that interpretative labelling can encourage reformulation (WHO, 2017; Vyth E.L. et.al., 2010; Mhurchu C.N., 2017). At the same time, it is necessary to check that the packaging of all products and beverages contains information on the sugar content and that the information provided by producers is correct and written in clear and easily readable text formats. Implementing front-of-pack labelling to help consumers select food products with lower sugar and salt content. Easy-to-access information about the sugar and salt content would increase the incentives of companies for reformulation.
- The use of revenue from an excise duty applied on a broad range of sugar-rich food products and non-alcoholic beverages could be transparent. The government could commit to allocate the tax revenue (or the fixed portion of revenue) to **enhance the health status of the population – to finance the specified initiatives.** Hungary could be an example of good practice. In Hungary since August 2023, companies subject to the PHPT can choose

⁸ In November 2023, the need for a revision of the multitiered tax structure of non-alcoholic sugar-sweetened beverages has been discussed by the Nutrition Council (latv. – Uztura padome) of the Ministry of Health of the Republic of Latvia. The Minister of Health H.Abu Meri stated that the sugar content limit which is set for the lowest tax rate could be gradually reduced to 4 g of sugar/100 ml, and 3 years later to 2 g/100 ml. This should gradually make consumers accustomed to drinks containing less sugar.

Source: The Ministry of Health (2023). Minutes of the meeting of the Nutrition Council of the Ministry of Health. 27.11.2023. Nr.24. Available: <https://www.vm.gov.lv/lv/media/13239/download?attachment>

to earmark 10% of their tax to programmes promoting active lifestyles and daily physical activity in the country (European Observatory of Health Systems and Policies, 2024⁹). This step aims to ensure that a part of the tax revenue directly contributes to the promotion of healthy and active lifestyles in Hungary. The Hungarian government has established a council composed of health and other professionals to ensure the effective use of the raised money. The council launched 15 programmes, including a trekking camp for disadvantaged children, school hiking programmes, a national weight loss programme, and a national programme to encourage general practitioners (GPs) to prescribe exercise in addition to or instead of medication (European Observatory of Health Systems and Policies, 2024).

- When setting rates, a balance could be struck between economic aspects and human health. When the price increases are relatively small, consumers are gradually adjusting to price changes, therefore such excise tax policy does not generate incentives for consumers to switch to untaxed substitutes or substitutes taxed at a lower rate. At the same time, small tax rate increases are less effective in changing consumers' behaviour and reducing overall consumption, while more effective in raising tax revenue. Large price increases will lead to a larger reduction in consumption of a particular product.
- Evidence from other EU countries shows that an increase in excise duties, and, therefore, higher prices, increase the incentives for consumers to engage in cross-border shopping or to switch to cheaper substitutes. As a result, the increase in excise duty can lead to a smaller decrease in consumption than initially planned or might even increase consumption (stockpiling of the product might lead to over-consumption) and can have no positive effect on health outcomes of the population. Therefore, when applying the excise tax to non-alcoholic beverages and sugar or salt-rich products, the tax rates could be coordinated and harmonised between three Baltic countries to reduce incentives for cross-border shopping. Excise tax policy coordination can lead to potential Pareto improvement that is mutually beneficial for all participating parties.
- Policymakers could consider to adjust the tax rates over time as disposable incomes rise in the country.

⁹European Observatory of Health Systems and Policies. The regulation of public health product tax has been amended to promote active lifestyles. Available:

<https://eurohealthobservatory.who.int/monitors/health-systems-monitor/updates/hspm/hungary-2011/the-regulation-of-public-health-product-tax-has-been-amended-to-promote-active-lifestyles#:~:text=Since%201%20August%202023%2C%20companies,physical%20activity%20in%20the%20country.>

Kopsavilkums

Liekais svars un aptaukošanās, kā arī nesabalansēts uzturs un zema fiziskā aktivitāte ir nozīmīgas sabiedrības veselības problēmas, kas palielina dažādu hronisku slimību risku, piemēram, sirds un asinsvadu slimības, 2. tipa cukura diabētu, hipertensiju, koronārās sirds slimības un noteiktus vēža veidus. Atsevišķiem cilvēkiem liekais svars var būt saistīts arī ar plašu psiholoģisko problēmu klāstu. Liekā svara un aptaukošanās līmenis ir ļoti augsts visās ES valstīs un īpaši Baltijas valstīs. 2022.gadā vairāk nekā pusei (51,3%)¹⁰ ES iedzīvotāju vecumā no 18 gadiem bija liekais svars vai aptaukošanās. **Latvijā liekā svara un aptaukošanās līmenis ir otrais lielākais ES (60,4%). Igaunijā un Lietuvā šie rādītāji ir arī salīdzinoši augsti — attiecīgi 57,4% un 59,4%, ieņemot piekto un desmito vietu starp ES-27 dalībvalstīm.**

Liekais svars un aptaukošanās rada būtisku slogu veselības aprūpes sistēmai un sociālajiem resursiem, un **tā ir viena no prioritātēm Latvijas politiskajā dienaskārtībā.** 2024. gada septembra sākumā Latvijas Republikas Veselības ministrija izstrādāja “Rīcības plānu liekā svara un aptaukošanās izplatības pieauguma mazināšanai 2025.–2029. gadam” un nodeva to sabiedriskai apspriešanai Atzīstot, ka liekā svara un aptaukošanās pamatā ir daudzfaktoru cēloņi, ir nepieciešama visaptveroša pieeja, lai efektīvi risinātu šo problēmu, iesaistot dažādu jomu ekspertus un risinot problēmu no vairākiem skatupunktiem. Akcīzes nodoklis varētu būt viens no instrumentiem visaptverošā pieejā, lai mazinātu pārmērīgu dzērienu un pārtikas produktu ar augstu cukura un sāls saturu patēriņu. Tas veicinātu sabalansētu uzturu un sekmētu pozitīvus veselības rezultātus.

Pētījuma mērķis ir analizēt akcīzes nodokļa piemērošanu bezalkoholiskajiem dzērieniem Latvijā un citās ES dalībvalstīs, kā arī izpētīt nodokļa bāzes paplašināšanas iespējas Baltijas valstīs, iekļaujot tajā pārtikas produktus ar augstu cukura un sāls saturu. Ziņojumā uzsvars tiek likts uz nodokļa ietekmes novērtēšanu no valsts ieņēmumu, sabiedrības veselības, patērētāju labklājības un citu politikas mērķu perspektīvas, piemēram, produktu pārformulēšanas veicināšanu. Tāpat tiek sniegti ieteikumi akcīzes nodokļa politikas uzlabošanai.

Cukura patēriņš

Pamatojoties uz Eiropas Pārtikas nekaitīguma iestādes (EFSA¹¹) datiem (EFSA Panel on Nutrition, Novel Foods and Food Allergens¹², 2022), **lielākais pievienotā cukura avots gandrīz visās Eiropas valstīs ir cukurs un saldumi**, kas svārstās no 20% no kopējā pievienotā cukura patēriņa pieaugušajiem vecumā 18–64 gadi Austrijā līdz 57% Itālijā (Latvijā – 48%, Igaunijā – 54%). Bērniem vecumā no 1 līdz 18 gadiem cukurs un saldumi veido 36–44% no pievienotā cukura patēriņa Latvijā un 38–49% no pievienotā cukura patēriņa Igaunijā.

Latvijā otrais lielākais pievienotā cukura avots ir **maizes izstrādājumi un deserti** (25% no kopējā pievienotā cukura patēriņa pieaugušajiem vecumā 18–64 gadi un 16–23% no kopējā pievienotā

¹⁰ Eurostat, pamatojoties uz datiem, kas savākti, izmantojot ES-SILC apsekojumu (Eiropas Savienības statistika par ienākumiem un dzīves apstākļiem).

¹¹ EFSA ir galvenā pārtikas drošības risku novērtēšanas institūcija Eiropas Savienībā.

¹² Latv. – Uztura, jauno pārtikas produktu un pārtikas alergēnu panelis.

cukura patēriņa bērniem vecumā 1–18 gadi) un **pārstrādāti augļi un dārzeņi** izņemot dzērienus (9% pieaugušajiem vecumā 18–64 gadi un 10–16% bērniem vecumā 1–18 gadi). Nozīmīgs pievienotā cukura avots bērniem vecumā 1–3 gadi ir **piena produkti** (21% no kopējā pievienotā cukura patēriņa). **Latvijā saldinātu bezalkoholisko dzērienu un augļu dzērienu devums kopējā pievienotā cukura patēriņā ir 8% pieaugušajiem vecumā 18–64 gadi un 3–7% bērniem vecumā 1–18 gadi.**

Igaunijā pēc cukura un saldumiem seko pārstrādāti augļi un dārzeņi izņemot dzērienus (11% pieaugušajiem vecumā 18–64 gadi un 7–14% bērniem vecumā 1–18 gadi) un piena produkti (11% pieaugušajiem vecumā 18–64 gadi un 11–22% bērniem vecumā 1–18 gadi, lielāku īpatsvaru veidojot jaunākiem bērniem). **Igaunijā saldinātu bezalkoholisko dzērienu un augļu dzērienu devums ir no 10% pieaugušajiem vecumā 18–64 gadi līdz 17–21% pusaudžiem vecumā 10–14 gadi (nedaudz zemāks īpatsvars ir bērniem citās vecuma grupās: 16% bērniem vecumā 14–18 gadi, 11–12% bērniem vecumā 1–9 gadi).**

Bezalkoholisko dzērienu patēriņš

2023. gadā Baltijas valstīs uz vienu iedzīvotāju pārdoto bezalkoholisko dzērienu (neietverot iepakoto ūdeni, atšķaidāmās limonādes un sulas & nektārus) apjoms veidoja 74,8%–76,1%¹³ no ES vidējā līmeņa (UNESDA, 2024). Vieglā (bezkaloriju un mazkaloriju) gāzēto bezalkoholisko dzērienu (CSDs) īpatsvars kopējā CSDs pārdošanas apjomā visās trijās Baltijas valstīs pakāpeniski palielinās, kas liecina par pāreju uz veselīgākām, ar mazāku cukura saturu dzērienu izvēlēm.

Saskaņā ar Latvijas Valsts ieņēmumu dienesta (State Revenue Service, 2024) datiem 2023. gadā 66,3% bezalkoholisko dzērienu, kas laisti patēriņā, saturēja mazāk nekā 8 g cukura uz 100 ml. 2022. gadā šī proporcija bija 63,2%, tāpēc var pieņemt, ka šī proporcija turpinās pieaugt.

Sāls patēriņš

Pasaules Veselības Organizācija (PVO) iesaka, ka pieaugušajam dienā nevajadzētu patērēt vairāk par 5 g sāls. Saskaņā ar PVO (WHO, 2023a) aplēsēm, 2019. gadā sāls patēriņš Latvijā un Lietuvā bija ievērojami lielāks par ieteikto: attiecīgi 7,6 g un 7,4 g dienā. Starp Baltijas valstīm Igaunijas sāls patēriņš ir vistuvākais ieteiktajam līmenim — 5,7 g dienā. Tomēr nesenie nacionālie pētījumi, kas veikti Igaunijā un Latvijā, norāda uz to, ka gan igauņi, gan latvieši patērē vairāk sāls, nekā liecina PVO (WHO, 2023a) aplēses.

Bezalkoholisko dzērienu aplikšana ar nodokļiem

Uz 2024. gadu Latvija ir vienīgā Baltijas valsts, kas piemēro nodokli bezalkoholiskajiem dzērieniem ar pievienotu cukuru, citiem saldinātājiem vai aromatizētājiem. Šis nodoklis tika ieviests 1999. gadā, galvenokārt lai palielinātu valsts budžeta ieņēmumus. Līdz 2022. gadam piemērojamā nodokļa likme bija 7,40 EUR par 100 litriem. 2022. gadā nodokļa likme tika diferencēta atbilstoši cukura saturam, piemērojot augstāku likmi dzērieniem, kas satur vairāk nekā 8 g cukura uz 100 ml. Kopš tā laika nodokļa likme dzērieniem ar augstu cukura saturu tika palielināta par 25% 2024. gada martā un tiks palielināta vēl par 20% 2026. gada janvārī. Akcīzes

¹³ Igaunija: 74,8%; Latvija 76,1%; Lietuva: 75,8%

nodokļa paaugstināšana bezalkoholiskajiem dzērieniem 2024. gadā ir viens no kompensējošiem pasākumiem, lai līdz 2024. gada beigām piemērotu samazināto PVN likmi 12% apmērā svaigiem augļiem un dārzeņiem.

Uz 2024.gadu Eiropā cukuru saturošu bezalkoholisko dzērienu nodokļi tiek piemēroti 14 valstīs – Beļģijā, Horvātijā, Somijā, Francijā, Ungārijā, Īrijā, Latvijā, Maltā, Nīderlandē, Polijā, Portugālē, Rumānijā, Spānijā (kur Katalonijas reģionā tiek piemērots akcīzes nodoklis, un visā Spānijā tiek piemērota paaugstināta PVN likme) un Apvienotajā Karalistē.

Igaunija plānoja ieviest nodokli cukuru saturošiem bezalkoholiskajiem dzērieniem 2026. gadā, lai samazinātu cukura un saldinātāju izmantošanu saldinātajos dzērienos. Tomēr jaunās valdības koalīcija 2024. gada jūlijā nolēma atcelt nodokļa ieviešanu. Vairākās citās Eiropas valstīs, piemēram, Norvēģijā, Luksemburgā un Nīderlandē, joprojām notiek diskusijas par šāda nodokļa nepieciešamību, bet citās, piemēram, Slovākijā, Itālijā un Čehijā, ir pieņemti likumi par nodokļa ieviešanu, un tie gaida savu īstenošanu.

Produktu ar augstu cukura, sāls un piesātināto tauku saturu aplikšana ar nodokļiem

Uz 2024. gadu Ungārija ir vienīgā valsts Eiropā, kas piemēro nodokli gan bezalkoholiskajiem dzērieniem, gan pārtikas produktiem ar augstu piesātināto tauku, sāls un cukura saturu. Vēl viens piemērs, kur ar cukuru saldināto produktu aplikšana ar nodokli atšķiras no citu pārtikas produktu aplikšanas ar nodokļiem, ir Rumānija, kas 2024. gadā paaugstināja PVN likmi no 9% līdz 19% pārtikas produktiem ar cukura saturu vismaz 10 g uz 100 g produkta, izņemot maizi, cepumus, alkoholiskos dzērienus un bezalkoholisko alu.

Ir vērts pieminēt arī Somijas un Dānijas pieredzi. Somijā saldumu nodoklis tika piemērots konditorejas izstrādājumiem, šokolādei un saldējumam, izslēdzot maizes izstrādājumus, jogurtus, pudiņus un citus līdzīgus produktus. 2017. gadā saldumu nodoklis tika atcelts pēc Eiropas Komisijas brīdinājuma par tā nesaderību ar ES valsts atbalsta noteikumiem. Savukārt Dānijā piesātināto tauku nodoklis, kas attiecās uz gaļu, piena produktiem, ēdamajiem taukiem un eļļām, margarīnu un maisījumu izstrādājumiem, tika piemērots vienu gadu sākot ar 2011. gada beigām, bet vēlāk atcelts, ņemot vērā tā nelabvēlīgo ietekmi uz pārrobežu iepirkšanos, konkurenci un nodarbinātību.

Cenu un nodokļu līmeņi bezalkoholiskajiem dzērieniem

Mēs salīdzinām cenu līmeņus (koriģētus pēc pirktspējas paritātes (PPP)) 330 ml starptautiski salīdzināma zīmola saldināta gāzēta dzēriena, izmantojot nodokļu likmes, kas ir spēkā uz 2024. gada jūliju. Šajā salīdzinājumā mēs izmantojam PVO (WHO, 2023 c) savāktos datus par cenām no 2022. gada jūlija līdz 2023. gada jūnijam.

Pielāgojot cenu līmeņus, ņemot vērā atšķirības pirktspējā, Latvijā PPP koriģētā cena bija pietā augstākā ES (PPP 1,78 USD¹⁴), savukārt Igaunija ierindojas ceturtajā vietā (PPP 1,81

¹⁴ Starptautiskais dolārs pēc pirktspējas paritātes.

USD). Lietuva ieņem 15. vietu ar PPP koriģētu cenu 1,27 USD. Izvēlētā dzēriena veida mediāna mazumtirdzniecības cena ES bija PPP 1,35 USD.

Akcīzes nodokļa daļa izvēlētā dzēriena veida mazumtirdzniecības cenā ES svārstījās no 1,8% līdz 11,3%, un akcīzes nodokļa daļas mediānas vērtība bija 6,2%. PPP koriģētie akcīzes nodokļa līmeņi bija visaugstākie Polijā (PPP 0,14 USD jeb 8,8% no mazumtirdzniecības cenas) un Portugālē (PPP 0,14 USD jeb 10,1% no mazumtirdzniecības cenas). Latvijā PPP koriģētā akcīzes nodokļa līmenis bija vienāds ar ES akcīzes nodokļa mediānas vērtību (PPP 0,09 USD).

PVN daļa izvēlētā dzēriena veida mazumtirdzniecības cenā ES svārstījās no 2,9% līdz 21,3%, un PVN daļas mediānas vērtība bija 17,4%. Igaunijā ir trešais augstākais PPP koriģētais PVN līmenis (PPP 0,33 USD jeb 18% no mazumtirdzniecības cenas), savukārt Latvija ieņem sesto vietu ar PPP koriģēto PVN līmeni (PPP 0,31 USD jeb 17,4% no mazumtirdzniecības cenas). Lietuva ierindojas 13. vietā starp ES valstīm ar PPP koriģētu PVN līmeni, kas ir vienāds ar ES mediānas līmeni (PPP 0,22 USD un 17,4% no mazumtirdzniecības cenas).

Kopējais nodokļu slogs (akcīzes nodoklis un PVN) izvēlētajam saldināta gāzēta dzēriena veidam ES svārstījās no 2,9% līdz 30% no mazumtirdzniecības cenas. Nodokļu daļas mediānas vērtība bija 17,6% no mazumtirdzniecības cenas, un netiešo nodokļu apjoma mediānas vērtība ES bija PPP 0,22 USD. **Latvijā kopējais PPP koriģētais netiešo nodokļu apjoms bija trešais augstākais ES (PPP 0,40 USD jeb 22,2% no mazumtirdzniecības cenas). Igaunija un Lietuva ierindojās attiecīgi devītajā un četrpadsmitajā vietā¹⁵.**

Atbilstība ES valsts atbalsta noteikumiem

Nodoklim, kas tiek piemērots pārtikas produktiem ar augstu cukura un sāls saturu, jāatbilst ES valsts atbalsta noteikumiem. Eiropas Komisija uzsver, ka jebkāds nodokļu pasākums, kas dod priekšroku noteiktiem uzņēmumiem vai konkrētu preču ražošanai, salīdzinot ar citiem salīdzināmiem produktiem (vai produktiem, kas satur tikpat daudz cukura vai sāls), tiek uzskatīts par valsts atbalstu (Confectionery News, 2016). Priekšrocības piešķiršana dažiem produktiem, izmantojot nodokļus, ir atļauta tikai tad, ja to var pamatot ar vispārējās ekonomiskās attīstības apsvērumiem. Tāpēc atsevišķu produktu ar augstu cukura saturu, piemēram, konditorejas izstrādājumu, aplikšana ar nodokli nav pieļaujama, bet ir izņēmums, kas attiecas uz bezalkoholisko dzērienu aplikšanu ar nodokli. Pamatojot bezalkoholisko dzērienu aplikšanu ar nodokli, neapliekot citus produktus ar augstu cukura saturu, Komisija (European Commission, 2018) norāda, ka bezalkoholiskie dzērieni ir viens no galvenajiem kaloriju avotiem bez uzturvērtības. Bezalkoholiskie dzērieni var veicināt pārmērīgu patēriņu un radīt lielāku aptaukošanās risku, salīdzinot ar citiem pārtikas produktiem. Tomēr, cik zināms, nav pētījumu, kas novērtētu cukura patēriņa izmaiņas, ko izraisījis bezalkoholisko dzērienu nodoklis, ņemot vērā iespējamo aizvietošanu ar citiem cukurotiem produktiem.

¹⁵ Igaunija: PPP 0,33 USD un 18% no mazumtirdzniecības cenas. Lietuva: PPP 0,22 USD un 17,4% no mazumtirdzniecības cenas.

Starptautiskie pierādījumi par nodokļu efektivitāti patēriņa samazināšanā

Citu valstu pieredze liecina, ka akcīzes nodokļu piemērošana bezalkoholiskajiem dzērieniem ar pievienotu cukuru var būt efektīva šo dzērienu patēriņa samazināšanā, ja nodokļu izraisītais cenu pieaugums ir pietiekami liels. Tomēr pierādījumi par šādu nodokļu efektivitāti kopējā cukura patēriņa samazināšanā ir pretrunīgi. Jaunzēlandes Ekonomisko pētījumu institūts (NZIER, 2017) norāda, ka pētījumi, kuros izmantotas zinātniski pamatotas metodes, liecina, ka cukura patēriņa samazinājums nodokļu ietekmē parasti ir pārāk mazs, lai nodrošinātu būtiskus veselības ieguvumus, un to var viegli kompensēt, ja patērētāji pāriet uz citiem kalorijām bagātiem produktiem. Savukārt pētījumos, kuros tiek ziņots par ievērojamām cukura patēriņa izmaiņām, tiek pieņemts, ka aizvietošanas efekts nepastāv. Plašs klāsts ar aizstājējproduktiem ar augstu cukura un tauku saturu rada risku, ka jebkādi pozitīvi nodokļa ieguvumi veselībai var tikt atcelti, kā arī apgrūtinā patiesās ietekmes uz sabiedrības veselības iznākumiem novērtēšanu.

Makkinzija (McKinsey) Globālais institūts (MGI, 2014) izpētīja 44 iespējamus pasākumus, kas vērsti uz patērētāju uzvedības maiņu, lai risinātu pieaugošo aptaukošanās problēmu pasaulē, un novērtēja šo pasākumu īstenošanas iespējamās izmaksas. Viens no galvenajiem secinājumiem bija, ka **neviens pasākums atsevišķi nebūs pietiekams cīņai ar aptaukošanos; tā vietā nepieciešama vairāku iejaukšanās pasākumu kombinācija visaptverošas un sistemātiskas programmas ietvaros**. Svarīgi, ka MGI secināja: **visefektīvākie pasākumi** aptaukošanās samazināšanai ir **porciju lieluma samazināšana** — veicot pakāpeniskus (1% līdz 5%) samazinājumus un labāk norādot porciju lielumus uz iepakojuma, lai veicinātu mērenāku patēriņu, — **un produktu pārformulēšana**, lai pakāpeniski samazinātu kaloriju daudzumu. Savukārt nodokļa ieviešana ierindojās tikai 13. vietā no 16 pētītajiem pasākumiem.

Ungārijas sabiedrības veselības produktu nodoklis (PHPT), ko piemēro plašam bezalkoholisko dzērienu un pārtikas produktu klāstam ar augstu tauku, sāls, cukura un specifisku piedevu (piemēram, metilksantīna, taurīna, žeņšeņa un L-arginīna enerģijas dzērienos) saturu, ir PVO (WHO, 2015c) atzīts par veiksmīgu piemēru tam, kā izmantot fiskālos rīkus, lai veicinātu veselīgākas pārtikas izvēles un palielinātu ieņēmumus sabiedrības veselības labā. Šis nodoklis ir kļuvis par svarīgu gadījuma izpētes piemēru, kā fiskālā politika var uzlabot veselības rezultātus. PHPT ne tikai paaugstināja cenas, bet arī veicināja sabiedrības izpratni par neveselīgas pārtikas kaitīgumu un mudināja patērētājus pievērsties veselīgākām alternatīvām. Lai veiksmīgi īstenotu šo nodokli, bija nepieciešama cieša sadarbība starp dažādām nozarēm, tostarp sabiedrības veselības ekspertiem, Veselības ministriju, Finanšu ministriju un PVO, lai nepārtraukti pilnveidotu politiku. Sākotnējā ieviešana tika vairākkārt pilnveidota, lai novērstu nepilnības un nodrošinātu efektivitāti, īpaši lai nepieļautu virspusējas receptu izmaiņas, kuru mērķis bija izvairīties no nodokļa. Vērtējumi, kas veikti vienu un trīs gadus pēc ieviešanas, apstiprināja, ka PHPT ir veiksmīgi sasniedzis savus sabiedrības veselības mērķus, samazinot aplikto produktu patēriņu. Tomēr, kā liecina Berezvai u.c. (2024) pētījums par periodu no 2010. līdz 2018. gadam, PHPT sākotnēji samazināja neveselīgas pārtikas patēriņu, taču šī ietekme laika gaitā mazinājās, pieaugot rīcībā esošajiem ienākumiem.

Bezalkoholisko dzērienu un pārtikas produktu ar augstu cukura un sāls saturu pārrobežu tirdzniecība

Pašlaik nav pierādījumu, ka Baltijas valstu iedzīvotāji dotos uz kaimiņvalstīm, lai iegādātos bezalkoholiskos dzērienus. Tomēr Norvēģijas un Dānijas pieredze liecina, ka patērētāji ir gatavi šķērsot robežas, lai iegādātos cukurotu pārtiku un bezalkoholiskos dzērienus, ja pastāv ievērojama cenu atšķirība. Ņemot vērā lielo pārrobežu tirdzniecības apjomu, patieso ietekmi uz aplikto preču patēriņu ir grūti novērtēt. Šo divu valstu pieredze arī uzsver nepieciešamību saskaņot akcīzes nodokļu politiku starp kaimiņvalstīm kā līdzekli pārrobežu tirdzniecības samazināšanai un akcīzes nodokļu efektivitātes uzlabošanai.

Ietekme uz nodarbinātību īstermiņā un ilgtermiņā

Novērtējot akcīzes nodokļu kopējo ietekmi uz pārtikas produktiem ar augstu cukura vai sāls saturu, ir svarīgi ņemt vērā potenciāli negatīvo ietekmi uz vietējo ražotāju peļņu, ražošanas apjomu un nodarbinātību īstermiņā. Nodokļu pieaugums var samazināt pārdošanas apjomus un radīt ievērojamus darbavieta zaudējumus tiem, kas ražo, izplata un pārdod šos produktus. Tomēr akcīzes nodokļu politikas neto ietekme uz valsts nodarbinātību ir atkarīga gan no darbavieta zaudējumu apjoma nodokļu skartajā sektorā, gan no darbavieta pieauguma citur ekonomikā, jo daļa patērētāju pārorientē savus izdevumus uz citām precēm un pakalpojumiem, savukārt valdība izlieto papildu nodokļu ieņēmumus, kas iegūti no nodokļu pieauguma. Turklāt akcīzes nodokļi bezalkoholiskajiem dzērieniem un pārtikas produktiem ar augstu cukura un sāls saturu, samazinot aplikto produktu patēriņu, palīdz mazināt ar aptaukošanos saistīto un citu neinfekcijas slimību saslimšanu izplatību, kā rezultātā samazinās veselības aprūpes izdevumi, kas saistīti ar šo slimību ārstēšanu. Resursi, kas netiek izlietoti veselības aprūpes pakalpojumiem, tiek novirzīti citu preču un pakalpojumu patēriņam, radot alternatīvas darbavietas citās ekonomikas nozarēs. Ir svarīgi atzīmēt, ka aplikto nodokļu produktu patēriņa samazinājumu vismaz daļēji varētu kompensēt mazāk aplikto (salīdzinoši lētāko) vai neaplikto produktu patēriņa pieaugums. Šos produktus bieži ražo tie paši uzņēmumi vai arī uzņēmumi var sākt tos ražot, ja tie izvēlas pārformulēt savus produktus, lai mazinātu pārdošanas apjomu kritumu (Chaloupka F.J. et al., 2019).

ASV pētījumā tika konstatēts, ka cukuru saturošu dzērienu patēriņa samazinājumam, kas saistīts ar augstākiem nodokļiem, ir vai nu neitrāla, vai pozitīva ietekme uz kopējo nodarbinātību (Powell L.M., 2014). Pētījumā tika izmantots makroekonomiskais simulācijas modelis, kas ņem vērā izmaiņas produktu pieprasījumā, vidējos štatu ienākumos un aizvietošanas efektus. Pētījuma rezultāti liecina, ka cukuru saturošu dzērienu nodokļu palielinājums par 20% divos štatos rada nodarbinātības izmaiņas, kas ir tuvu nullei, jo nodarbinātības samazinājumu dzērienu nozarē kompensē jaunas darbavietas citās nozarēs un valdības sektoros.

Ekonometriskās analīzes rezultāti

Pamatojoties uz Ungārijas pieredzi, mēs modelējam īstermiņa ietekmi, ko rada diferencēta, visaptveroša nodokļa ieviešana pārtikas produktiem ar augstu cukura un sāls saturu, izmantojot Pluta et al. (2020) pieeju. Vispirms mēs izmantojam mēneša datus par bezalkoholisko dzērienu un noteiktu pārtikas produktu kategoriju pārdošanas apjomu un cenām modernās tirdzniecības mazumtirdzniecības tirgū no 2019. līdz 2023. gadam, lai novērtētu pieprasījuma cenu elastību

Baltijas valstīs. Modernās tirdzniecības mazumtirdzniecības tirgus ietver lielveikalus, hipermarketus un liela formāta veikalus. Analīzē tiek izmantoti AC Nielsen dati. Otrkārt, mēs simulējam dažādus scenārijus, lai novērtētu cenu pieaugumu, pārdošanas apjoma samazinājumu un budžeta ietekmi, izmantojot novērtētās elastības un pieņemot dažādus nodokļu pārvešanas pakāpes uz mazumtirdzniecības cenām. Jāņem vērā, ka mūsu rezultāti atspoguļo īstermiņa vai tiešo fiskālo efektu, tāpēc mēs neņemam vērā iespējamās otrās kārtas efektus, kas var rasties, mainoties vietējai ražošanai, nodarbinātībai un līdz ar to arī citiem nodokļu ieņēmumiem.

Pašlaik Ungārija ir vienīgā valsts Eiropā, kas piemēro nodokli iepakotiem pārtikas produktiem ar augstu tauku, sāls un cukura saturu. Šis nodoklis tiek veiksmīgi piemērots kopš 2011. gada (skatīt 3.2. sadaļu par PHPT efektivitāti). Definējot scenārijus, kas tiek izmantoti, modelējot jaunā nodokļa ieviešanu Baltijas valstīs, mēs izmantojam Ungārijas PHPT kā labās prakses piemēru. Par pamatu tiek ņemts PHPT nodoklim pakļauto produktu kategoriju saraksts, divpakāpju nodokļu sistēma un PHPT likmes 2024. gadā (skatīt 3.3. sadaļu). Turklāt mēs novērtējam arī citas produktu kategorijas (piemēram, saldināti piena produkti, saldināti graudaugi un konservēti dārzeņi un pupas), vēl vairāk paplašinot nodokļu bāzi.

Kopumā mēs analizējam vienu scenāriju bezalkoholisko dzērienu aplikšanai ar nodokli un četrus alternatīvus scenārijus pārtikas produktu ar augstu cukura un sāls saturu aplikšanai ar nodokli.

Scenāriji bezalkoholiskajiem dzērieniem

Mēs simulējam akcīzes nodokļa pieaugumu bezalkoholiskajiem dzērieniem Latvijā, palielinot augsto likmi no 14 līdz 17,5 EUR par 100 litriem. Tas atspoguļo nodokļa likmes pieaugumu bezalkoholiskajiem dzērieniem ar cukura saturu virs 8 g uz 100 ml, kas tika ieviests 2024. gada martā Latvijā. Lietuvai un Igaunijai mēs simulējam akcīzes nodokļa ieviešanu, piemērojot likmes, kas Latvijā ir spēkā kopš 2024. gada marta. Pēc tam tiek novērtēts, kā šāda politika ietekmēs pārdošanas apjomu samazināšanos un budžeta ieņēmumus.

Mēs nesimulējam augstāku akcīzes nodokļa likmi bezalkoholiskajiem dzērieniem, jo nodokļu slogs Latvijā jau ir ļoti salīdzinoši augsts. 2024. gadā Latvijā kopējais PPP koriģētais netiešo nodokļu apjoms bija trešais augstākais ES (PPP 0,40 USD jeb 22,2% no mazumtirdzniecības cenas).

Scenāriji pārtikas produktiem ar augstu cukura un sāls saturu

Scenāriji 1 – 4 paredz divpakāpju nodokļu sistēmas piemērošanu gandrīz visām pārtikas produktu kategorijām ar augstu cukura un sāls saturu (izņemot garšvielas, kurām tiek piemērota tikai augstāka likme augstā sāls satura dēļ, līdzīgi kā Ungārijā). Scenāriji atšķiras pēc piemērojamām likmēm.

Scenārijs 1 paredz, ka zemās un augstās likmes, kas tiek piemērotas pārtikas produktiem, ir vienādas ar likmēm, kas tiek piemērotas bezalkoholiskajiem dzērieniem Latvijā 2024. gada martā. Tādējādi zemā likme ir 7,40 EUR par 100 kg, ja pārtikas produktā sāls vai cukura daudzums tiek uzskatīts par zemu, un 17,5 EUR, ja sāls vai cukura saturs tiek uzskatīts par augstu.

Scenārijs 2 paredz, ka zemās un augstās likmes, kas tiek piemērotas pārtikas produktiem, ir vienādas ar Ungārijas PHPT likmēm 2024. gadā. **Scenārijs 3** nosaka, ka zemās un augstās likmes pārtikas produktiem ir 1,5 reizes augstākas nekā PHPT likmes 2024. gadā. **Scenārijs 4** nosaka, ka zemās un augstās likmes pārtikas produktiem ir 2 reizes augstākas nekā PHPT likmes 2024. gadā.

Nosakot intervāla apakšējo robežu, mēs pieņemam, ka 100% no konkrēta produkta vai dzēriena pārdošanas apjoma tiek aplikts ar jauno nodokli, bet cukura un sāls daudzums produktā ir zems, tādēļ tiek piemērota zemāka likme.

Nosakot intervāla augšējo robežu, mēs pieņemam, ka 25% no konkrēta produkta vai dzēriena pārdošanas apjoma tiek aplikts ar jauno nodokli, bet cukura un sāls daudzums ir zems, tādēļ tiek piemērota zemāka likme. Atlikušajiem 75% no pārdošanas apjoma tiek piemērots jaunais nodoklis, bet cukura un sāls daudzums ir augsts, tādēļ tiem tiek piemērota augstāka likme.

Rezultāti: bezalkoholiskie dzērieni

Apkopojot aprēķinus par visiem bezalkoholiskajiem dzērieniem, 100% nodokļa pārvešanas pakāpes gadījumā šāda reforma varētu novest pie bezalkoholisko dzērienu cenu pieauguma par 1,8% Latvijā (ņemot vērā tikai bezalkoholiskos dzērienus, uz kuriem attiecas akcīzes nodoklis), 15,2% Lietuvā un 10,8% Igaunijā¹⁶. Cenu pieaugums Igaunijā ir mazāks nekā Lietuvā, jo Igaunijā bezalkoholisko dzērienu cenas ir augstākas, un tādēļ akcīzes nodoklis veido mazāku daļu no cenas. Ja nodokļa pārvešanas pakāpe būtu 50%, cenu pieaugums būtu par 50% mazāks.

Ir paredzams, ka akcīzes nodokļa ieviešana bezalkoholiskajiem dzērieniem radīs EUR 17,9-19,9 milj. ieņēmumus Lietuvā un EUR 9,5-10,0 milj. Igaunijā gadā. Latvijā ieņēmumu pieaugums no akcīzes nodokļa tiek lēsts apmēram EUR 1,5 milj. apmērā.

Vislielākais bezalkoholisko dzērienu pārdošanas apjoma kritums, uz kuriem attiecas akcīzes nodoklis (11,2–13,3%, ja nodokļa pārvešanas pakāpe ir 100%, un 5,6–6,7%, ja nodokļa pārvešanas pakāpe ir 50%), būtu Lietuvā, jo tur cenu pieaugums būtu visaugstākais. Igaunijā bezalkoholisko dzērienu pārdošanas apjoms samazinātos par 6,7–7,7%, ja nodokļa pārvešanas pakāpe būtu 100%, un par 3,3–3,9%, ja nodokļa pārvešanas pakāpe būtu 50%. Savukārt Latvijā, kur akcīzes nodoklis tiek piemērots jau vairāk nekā divas desmitgades, bezalkoholisko dzērienu pārdošanas apjoms samazinātos vismazāk, salīdzinot ar citām Baltijas valstīm – par 1,2–1,3%, ja nodokļa pārvešanas pakāpe būtu 100%, un par 0,6–0,7%, ja nodokļa pārvešanas pakāpe būtu 50%.

Rezultāti: pārtikas produkti ar augstu cukura un sāls saturu

Saskaņā ar mūsu aprēķiniem, akcīzes nodokļa piemērošana pārtikas produktiem ar augstu cukura un sāls saturu varētu izraisīt šo pārtikas produktu cenu pieaugumu un pārdošanas apjoma samazināšanos, un šo izmaiņu apjoms ir atkarīgs no pārtikas produkta veida (t.i. vidējās mazumtirdzniecības cenas valstī) un pieņemtā scenārija (t.i. nodokļu likmēm). Vislielākā ietekme ir gaidāma gataviem ēdieniem (tādiem kā iepakotas gatavas pusdienas un konservēti dārzeņi un pupiņas) un ātrās pagatavošanas pārtikas produktiem un garšvielām. Tas skaidrojams ar to, ka šiem

¹⁶ Cenu pieaugums Igaunijā un Lietuvā ir lielāks nekā Latvijā, jo šajās valstīs mēs simulējam jauna nodokļa ieviešanu bezalkoholiskajiem dzērieniem, kamēr Latvijā mēs simulējam jau esoša nodokļa palielinājumu.

produktiem mēs simulējam vienu augstu piemērojamo likmi (nevis divu līmeņu sistēmu), kā tas ir Ungārijā).

1. scenārijā, piemērojot akcīzes nodokli pārtikas produktiem ar augstu cukura un sāls saturu, tiek prognozēts, ka Latvijā ik gadu tiks ģenerēti papildu EUR 5,3 – 10,6 milj., Lietuvā EUR 9,9 – 19,7 milj., Igaunijā EUR 6,6 – 11,9 milj. (ja nodokļa pārvešanas pakāpe ir 100% un līdzīgs apjoms, ja nodokļa pārvešanas pakāpe ir 50%). Izmaiņas PVN ieņēmumos ir pozitīvas, zem vai tuvu EUR 1 milj. robežai.

2. scenārijā zemās un augstās likmes, kas piemērotas pārtikas produktiem, ir vienādas ar Ungārijas PHPT likmēm 2024. gadā. Akcīzes nodokļa ieviešana pārtikas produktiem ar augstu cukura un sāls saturu varētu ģenerēt papildus ieņēmumus EUR 10,2 – 34,9 milj. Latvijā, EUR 19,3 – 64,0 milj. Lietuvā, EUR 11,9 – 39,9 milj. Igaunijā (ja nodokļa pārvešanas pakāpe ir 100% un nedaudz lielāku apjomu, ja nodokļa pārvešanas pakāpe ir 50%). Izmaiņas PVN ieņēmumos ir pozitīvas, zem vai tuvu EUR 3 milj. robežai.

3. scenārijā zemās un augstās likmes, kas piemērotas pārtikas produktiem, ir 1,5 reizes augstākas nekā Ungārijas PHPT likmes 2024. gadā. Visbeidzot, 4. scenārijā zemās un augstās likmes, kas piemērotas pārtikas produktiem, ir 2 reizes augstākas nekā PHPT likmes 2024. gadā. 3. un 4. scenārijos potenciālie ieņēmumi no akcīzes nodokļa ir aptuveni vienādi ar atbilstošajām vērtībām 2. scenārijā, reizināti ar koeficientu 1,5 (3. scenārijā) un 2 (4. scenārijā). Izmaiņas PVN ieņēmumos pārsvarā ir pozitīvas, zem vai tuvu EUR 4 milj. robežai.

Rekomendācijas akcīzes politikas veidošanai

- Literatūrā pieejamie dati par bezalkoholisko dzērienu nodokļa efektivitāti cukura un kaloriju patēriņa samazināšanā ir pretrunīgi. Vienlaikus citu valstu pieredze liecina, ka **cukura nodoklis ir efektīvs uzņemto kaloriju samazināšanā, ja tas tiek piemērots plašam produktu klāstam**, nevis tikai dažiem produktiem, kas patērētājiem ļauj pāriet uz citiem pārtikas produktiem ar pievienotu cukuru, sāli un taukiem. Lai cīnītos ar pieaugošo aptaukošanās un citu neinfekcijas slimību izplatību, piemērojot akcīzes nodokli bezalkoholiskajiem dzērieniem, **ir svarīgi veikt sabiedrības veselības pētījumu, lai novērtētu cukura patēriņa izmaiņas, ko izraisījis šis nodoklis, ņemot vērā iespējamo aizstāšanu ar citiem cukuru saturošiem produktiem**. Šāda pētījuma rezultāti varētu pamatot nepieciešamību paplašināt nodokļu bāzi, iekļaujot tajā arī citus cukuru saturošus produktus.
- Politikas veidotājiem būtu vērts apsvērt visaptverošu pieeju iedzīvotāju liekā svara un aptaukošanās samazināšanai. **Akcīzes nodoklim nevajadzētu būt vienīgajam instrumentam akcīzes preču patēriņa samazināšanai**. Saskaņā ar Makkinzija (McKinsey) Globālā institūta (MGI, 2014) pētījumu, visefektīvākie pasākumi liekā svara mazināšanai ir **produktu pārformulēšana ražošanas procesā un mazumtirdzniecībā pāreja uz mazākiem iepakojumiem** (porciju kontrole). Pārformulēšana palīdz samazināt neveselīgas pārtikas pieejamību un potenciāli samazināt ar uzturu saistīto slimību veselības aprūpes izmaksas.

- Citu valstu pieredze liecina, ka, reaģējot uz valdības lēmumiem ieviest vai paaugstināt akcīzes nodokli bezalkoholiskajiem dzērieniem, daudzi uzņēmumi izvēlas pārformulēt savus produktus, samazinot cukura saturu, lai samazinātu pārdošanas apjoma kritumu. Nolīgumu panākšana ar ražotājiem par cukura, sāls un piesātināto tauku satura samazināšanu pārtikas produktos un bezalkoholiskajos dzērienos ir viens no veidiem, kā panākt noteiktu produktu patēriņa samazināšanos un veicināt veselīgus ēšanas paradumus iedzīvotāju vidū. Tas paplašina iedzīvotāju iespējas iegādāties veselīgākus pārtikas produktus. Līdz 2024. gada septembrim visas Baltijas valstis ir spējušas panākt šādu brīvprātīgu vienošanos (Latvija 2022. gadā, Lietuva 2018. gadā¹⁷, Igaunija 2019. gadā¹⁸).

No 2024. gada septembra 12 Latvijas pārtikas produktu un bezalkoholisko dzērienu ražotāji pievienojās sadarbības memorandam par pārtikas produktu un dzērienu pārformulēšanu, ko 2022. gada februārī¹⁹ parakstīja Veselības ministrija, Latvijas Pārtikas uzņēmumu federācija un Latvijas Tirdzniecības un rūpniecības kamera (LTRK). Pievienojoties, dalībnieki apņemas samazināt sāls, cukura vai piesātināto taukskābju daudzumu savos produktos, tādējādi veicinot veselīgas uztura pieejamību iedzīvotājiem. Memorands ietver tādas pārtikas produktu grupas kā gaļas un zivju produkti, graudaugu produkti, augļu un dārzeņu produkti, saldēti gatavie ēdieni, piena produkti, saldumi, dzērieni, kartupeļu produkti un bērnu pārtika.

Uz importētājiem un dažiem vietējo pārtikas produktu un bezalkoholisko dzērienu ražotājiem var neattiekties valdības un ražotāju panāktie nolīgumi, un tie var arī neapņemties brīvprātīgi samazināt cukura saturu savos produktos vai samazināt porciju lielumu. Ņemot to vērā, kā arī citu pētījumu rezultātus, kas liecina, ka cukura nodoklis ir efektīvs cukura un kalorijām bagātu pārtikas produktu patēriņa samazināšanā, ja tas tiek piemērots plašam produktu klāstam, **politikas veidotāji varētu apsvērt akcīzes nodokļa ieviešanu plašākam pārtikas produktu un bezalkoholisko dzērienu klāstam ar pievienotu cukuru un sāli, diferencējot nodokļa likmi atbilstoši produkta cukura un sāls saturam. Politikas veidotāji varētu apsvērt iespēju piemērot daudzpakāpju nodokļu struktūru²⁰ (ar vairāk nekā divām likmēm) un nodrošināt 100% atvieglojumu inovatīviem produktiem, piemēram, bezalkoholiskajiem dzērieniem ar zemu cukura saturu vai bez pievienotā cukura, ūdenim ar dabīgiem aromatizētājiem un bezcukura vai ar zemu cukura saturu uzkodām.** Diferencēta nodokļu likme stimulētu nozari samazināt cukura un sāls saturu savos produktos, piedāvājot veselīgākas

¹⁷ <https://lithuaniantribune.com/health-minister-sees-no-sense-in-sugar-tax-amid-plans-to-improve-product-contents/>

¹⁸ Labas gribas vienošanās tika panākta par pievienotā cukura satura samazināšanu pārtikas produktos un dzērienos. Pieejams: <https://www.err.ee/929457/kummekond-tootjat-piirab-lisatud-suhkru-hulka-oma-toodetes>

¹⁹ Latvijas Republikas Veselības ministrija. Sadarbības memorandi. Pieejams: <https://www.vm.gov.lv/lv/sadarbibas-memorandi>

²⁰ 2023.gada gada novembrī Veselības ministrijas Uztura padome apsprieda nepieciešamību pārskatīt bezalkoholisko cukuru saturošo dzērienu daudzlīmeņu nodokļa struktūru. Veselības ministrs H. Abu Meri paziņoja, ka cukura satura limits, kas noteikts zemākajai nodokļa likmei, varētu tikt pakāpeniski samazināts līdz 4 g cukura uz 100 ml, bet pēc trim gadiem līdz 2 g uz 100 ml. Tas pakāpeniski pieradinātu patērētājus pie dzērieniem ar mazāku cukura saturu.

Avots: Veselības ministrija (2023). Veselības ministrijas Uztura padomes sēdes protokols. 27.11.2023. Nr. 24. Pieejams: <https://www.vm.gov.lv/lv/media/13239/download?attachment>

alternatīvas. Šādu akcīzes nodokļu piemērošana plašam cukuru un sāls saturošu produktu klāstam varētu nodrošināt papildu ieņēmumus valsts budžetā.

- **Politīķi varētu stimulēt ražotājus un dot tiem pietiekami daudz laika, lai samazinātu cukura daudzumu savos produktos, kas varētu ievērojami samazināt cukura un sāls patēriņu, negatīvi neietekmējot pārdošanas apjomus.** Tomēr pārformulēšanas centieni, visticamāk, atšķirsies starp uzņēmumiem, atkarībā no ražošanas izmaksu ierobežojumiem, patērētāju pieķeršanās dzērienu garšai, zīmola portfeļiem, konkurences pozīcijām un attiecībām ar izplatītājiem un uzņēmumiem, kuri nodarbojas ar preču iepakojumu. Pastāv bažas par iespējamo kaitējumu vietējiem uzņēmumiem. Baltijas valstīs vietējo ražotāju ražoto bezalkoholisko dzērienu un pārtikas produktu ar augstu cukura un sāls saturu tirgus daļa ir salīdzinoši maza, salīdzinot ar lielajām starptautiskajām kompānijām, kurām ir daudz lielāki resursi, lai pielāgotu savas receptes un ātrāk mainītu ražošanas procesus.
- **Svarīga loma cukura un sāls patēriņa samazināšanā ir sabiedrības izpratnes palielināšanai par negatīvajām veselības sekām, ko izraisa pārmērīgs šo vielu patēriņš.** Politikas veidotāji var apsvērt dažādas iespējas, kā pievērst patērētāju uzmanību cukura un sāls saturam pārtikas produktos un dzērienos. Piemēram, produktus un dzērienus var iedalīt 3 grupās pēc cukura satura - bagāta, vidēja un zema – un ražotājiem un izplatītājiem uzlikt par pienākumu katrai grupai izmantot vienotu marķējumu. Pētījumu rezultāti norāda, ka skaidrojošs marķējums var veicināt produktu pārformulēšanu (WHO, 2017; Vyth E.L. u.c., 2010; Mhurchu C.N., 2017). Vienlaikus ir jāpārbauda vai uz visu produktu un dzērienu iepakojuma ir informācija par cukura saturu, vai ražotāju sniegtā informācija ir patiesa un uzrakstīta skaidri un viegli salasāmā veidā. Ieviešot iepakojuma priekšpuses marķējumu, var palīdzēt patērētājiem izvēlēties pārtikas produktus ar zemāku cukura un sāls saturu. Viegli pieejama informācija par cukura saturu palielinātu uzņēmumu motivāciju īstenot produkta pārformulēšanu.
- Ieņēmumu izmantošana no akcīzes nodokļa, kas tiek piemērots plašam cukuru saturošu pārtikas produktu un bezalkoholisko dzērienu klāstam, varētu tikt padarīta caurskatāma. Valdība varētu apņemties **novirzīt nodokļa ieņēmumus (vai noteiktu to daļu) sabiedrības veselības uzlabošanai, finansējot konkrētas iniciatīvas.** Ungārija ir labs piemērs šādai pieejai. Kopš 2023. gada augusta uzņēmumi, uz kuriem attiecas PHPT, var izvēlēties novirzīt 10% no sava nodokļa programmām, kas veicina aktīvu dzīvesveidu un ikdienas fiziskās aktivitātes valstī (European Observatory of Health Systems and Policies, 2024²¹). Ungārijas valdība ir izveidojusi padomi, kurā ietilpst veselības un citi speciālisti, lai nodrošinātu efektīvu savākto līdzekļu izmantošanu. Padome uzsāka 15 programmas, tostarp pārgājieni nometni maznodrošinātiem bērniem, skolu pārgājieni programmas, nacionālu svāra samazināšanas programmu un nacionālu programmu, lai mudinātu ģimenes ārstus izrakstīt fiziskās aktivitātes kā papildinājumu vai alternatīvu medikamentiem (European Observatory of Health Systems and Policies, 2024).

²¹ Eiropas Veselības sistēmu un politikas observatorija. Sabiedrības veselības produktu nodokļa regulējums ir grozīts, lai veicinātu aktīvu dzīvesveidu. Pieejams: <https://eurohealthobservatory.who.int/monitors/health-systems-monitor/updates/hspm/hungary-2011/the-regulation-of-public-health-product-tax-has-been-amended-to-promote-active-lifestyles#:~:text=Since%201%20August%202023%2C%20companies,physical%20activity%20in%20the%20count ry.>

- Nosakot nodokļu likmes, jāatrod līdzsvars starp ekonomiskajiem aspektiem un sabiedrības veselību. Kad cenu pieaugums ir salīdzinoši neliels, patērētāji pakāpeniski pielāgojas cenu izmaiņām, tādējādi šāda akcīzes nodokļa politika nerada stimulus patērētājiem pāriet uz produktiem, kuriem nav uzlikts nodoklis, vai uz produktiem, kuriem piemērota zemāka nodokļa likme. Vienlaikus nelieli nodokļa likmes palielinājumi ir mazāk efektīvi, lai mainītu patērētāju uzvedību un samazinātu kopējo patēriņu, bet labāk piemēroti, lai palielinātu nodokļu ieņēmumus. Liels cenu pieaugums izraisīs lielāku patēriņa samazinājumu.
- Citu valstu pieredze liecina, ka akcīzes nodokļu palielināšana, kuras rezultātā pieaug cenas, veicina patērētāju vēlmi iepirkties pāri robežai vai pāriet uz lētākiem aizstājējiem. Tā rezultātā akcīzes nodokļa palielināšana var izraisīt mazāku patēriņa samazinājumu, nekā sākotnēji plānots, vai pat palielināt un veicināt pārmērīgu patēriņu (produktu uzkrāšana var novest pie pārmērīga patēriņa), un tai var nebūt pozitīva ietekme uz iedzīvotāju veselību. Tāpēc, piemērojot akcīzes nodokli bezalkoholiskajiem dzērieniem un cukuru vai sāli saturošiem produktiem, nodokļu likmes būtu jākoordinē un jāsaskaņo starp trim Baltijas valstīm, lai mazinātu motivāciju iepirkties pāri robežai. Akcīzes nodokļu politikas koordinēšana varētu novest pie potenciāla Pareto uzlabojuma, kas būtu abpusēji izdevīgs visām iesaistītajām pusēm.
- Politikas veidotāji varētu apsvērt iespēju laika gaitā pielāgot nodokļu likmes, pieaugot iedzīvotāju rīcībā esošajiem ienākumiem.

Introduction

Overweight and obesity are significant public health issues in the Baltic countries, contributing to various chronic diseases such as cardiovascular diseases, type-2 diabetes, and certain cancers. In 2022, **Latvia has the 2nd highest proportion of overweight adult population in the EU (60.4%)²². In Estonia and Lithuania, the proportions are also relatively high (57.4% and 59.4% respectively and the 5th and 10th positions among the EU-27 member states).** Such high rates provide a compelling public health reason to take measures to discourage excessive consumption of high-calorie foods and beverages. Excise tax is one of the tools in a complex approach to encourage a balanced diet and promote positive health outcomes.

In Latvia the tax on non-alcoholic beverages added sugar, other sweeteners or flavouring was introduced in 1999, which was mainly motivated by the budget's financial needs. In 2022, the tax was differentiated based on sugar content, with a higher rate applied to beverages containing more than 8 g of sugar per 100 ml. Estonia planned to introduce a tax on sugar-sweetened non-alcoholic beverages in 2026 to reduce the use of sugar and sweeteners in sugary drinks. However, the tax implementation was cancelled by the coalition of a new government in July 2024.

In Europe as of 2024 taxes on sugar-sweetened non-alcoholic beverages are implemented in 14 countries. The evidence from various international case studies demonstrates that taxes on sugar-sweetened beverages can be effective in reducing consumption in the short term, particularly when the tax leads to significant price increases that alter affordability. However, the evidence on the effectiveness of taxes on soft drinks in reducing sugar intake is inconclusive. At the same time experience from Hungary and Finland suggests that a sugar tax is effective in reducing sugar and calorie intake when imposed on a wide range of products, as opposed to a tax on a few products, which induces consumers' switching to other foods with added sugar, salt and fats.

This report aims to analyze the use of excise taxes on non-alcoholic beverages in Latvia and other EU member states and explore the potential for expanding these taxes to other sugar and salt-rich products in the Baltic countries. The focus is on evaluating the implications of such taxes from the point of view of state revenues, public health, consumer welfare, and other policy objectives, such as incentivizing product reformulation, and developing recommendations on excise tax policy.

The study is structured in four main parts. **Part 1** examines the overweight problem and the role of soft drinks and high-salt and high-sugar food products in the nutrition of the population in the Baltic countries. **The second part** reviews the status and implications of excise taxes on non-alcoholic beverages and food products in the EU countries. **The third part** considers the potential for expanding excise taxes to cover a broader range of products. **The fourth part** provides an econometric analysis of the demand for selected soft drinks and sugar and salt-rich food products. It discusses different scenarios of tax rates and categories of food products potentially subject to tax and evaluates the direct impact of excise taxes on state budget revenues. The focus is on the three Baltic countries. The report concludes with a **discussion and recommendations**.

²² Eurostat based on data collected via EU-SILC (Statistics on Income and Living Conditions).

1. Contribution of soft drinks and food products high in added salt and sugar to the nutrition of the population in the Baltic countries

Overweight and obesity, along with an unbalanced diet and low physical activity, are serious public health problems as they significantly increase the risk of chronic diseases such as cardiovascular disease, type-2 diabetes, hypertension, coronary heart diseases and certain cancers. For specific individuals, being overweight may further be linked to a wide range of psychological problems. Overweight and obesity rates are extremely high in all EU countries and these rates are still growing. This puts a considerable strain on health care and social resources. It is estimated that on average in the EU, overweight and obesity reduce life expectancy by nearly three years (OECD, 2019)²³. Worldwide, at least 2.8 million people die each year as a result of being overweight or obese²⁴. For instance, the death rate from ischaemic heart diseases in the Baltic countries is above the EU-27 average, while in Lithuania and Latvia, the death rate from ischaemic heart diseases is the 1st and 3rd highest among the EU-27 countries (see Figure 0.1 in Annex 1). Being overweight or obese is also linked with a higher risk of getting 13 different types of cancers (WHO, 2022). The death rate due to cancer in the Baltic countries also exceeds the EU-27 average, among the Baltic countries the highest rate is experienced in Latvia (the 3rd highest rate among the EU-27 countries) (see Figure 0.2 in Annex 1).

This section is devoted to:

- the overweight problem
- the salt intake and implementation of policies aimed at the reducing salt intake
- the soft drinks consumption
- contribution of food products high in added sugar to the nutrition of population.

In all the above-mentioned issues, we focus on the Baltic countries and compare them with other EU countries.

1.1. Overweight problem

In the EU more than half of the adult population aged 18 and over (51.3%) considered overweight (including pre-obese and obese) in 2022²⁵. The highest share of the overweight population was recorded in Malta (62.5% of the population aged 18 and over considered overweight) and the lowest share was recorded in Italy (41.9%) (see Figure 0.3 in Annex 1 for overweight rates and Figure 0.4 for obesity rates). **Latvia has the 2nd highest proportion of overweight people in the EU (60.4%).** In Estonia and Lithuania, the proportions are also relatively high (57.4% and 59.4% respectively and the 5th and 10th positions among the EU-27 member states). Within 5 years from

²³According to the OECD/European Union (2020) referred by Euronews (2023).

²⁴ WHO. Obesity. Available: <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/3420>

²⁵ Eurostat based on data collected via EU-SILC (Statistics on Income and Living Conditions).

2017 to 2022, the proportion increased by 3.4 pp in Latvia, by 3.2 pp in Lithuania, and by 1.3 pp in Estonia (there is a light decrease by 0.5 pp on average in the EU-27²⁶).

National studies conducted by the Centre for disease prevention and control²⁷ in Latvia allow to track the dynamics of the proportions of overweight (pre-obese) and obese population starting from 1998. In 2022 59.4% of the Latvian population were overweight or obese (see Figure 0.5 in Annex 1). In 2022 compared to 1998 the proportion of the population with normal weight decreased by 14.7 percentage points, while the proportion of the overweight (pre-obese) and obese population increased by 8 and 8.8 percentage points, respectively.

Obesity rates among young males aged 15–24 years have increased from 0.5% in 1998 to 5.1% in 2022, and from 1.7% to 6% among females of the same age group (see Figure 0.6 in Annex 1). Overweight rates more than doubled for young males aged 15–24 (from 11.2% in 1998 to 24.3% in 2022) and almost doubled for young females aged 15–24 (from 7.7% in 1998 to 13.9% in 2022).

The results of the study conducted by Public Opinion Research Center SKDS (SKDS, 2021) show that only 69.9% of Latvian five-year-old children are of normal body weight, while 19.2% of Latvian five-year-old children have excess body weight and obesity (12.0% overweight, 7.2% - obese). There are no pronounced differences in gender groups: 19.8% of boys and 18.6% of girls are considered overweight or obese.

1.2. Salt intake and implementation of sodium reduction policies

An estimated 1.89 million deaths each year are associated with consuming too much sodium²⁸ (WHO, 2023a) a well-established cause of raised blood pressure and increased risk of cardiovascular disease, the leading cause of death globally. WHO recommends less than 5 g per adult per day of salt intake. However, according to the WHO estimate, most countries are consuming much more salt than recommended. In 2019, the mean global sodium intake of adults was estimated at 4 310 mg/day (10.78 g/day salt)²⁹ (WHO, 2023a) which is more than double the WHO recommendation. In the WHO European Region, the mean sodium intake of adults equalled to 3 445 mg/day (8.61 g/day salt). Among the Baltic countries, the sodium intake in Estonia is the closest to the recommended one: 2259 mg/day of sodium or 5.7 g/day salt. The sodium intake in Latvia and Lithuania is much higher: 2975 mg/day of sodium (7.6 g/day salt) and 2927 g/day of sodium (7.4 g/day salt) respectively.

Recent national studies conducted in Estonia and Latvia report higher salt consumption of Estonians and Latvians than the WHO (2023a). A population-based salt consumption study conducted by the Estonian Health Development Institute (2022) showed that Estonian men consume on average twice as much salt (12.2 g/day) as the WHO recommended amount on

²⁶ The average level of the EU-27 countries, which are the EU members as of 2020-2024.

²⁷ Centre for disease prevention and control. Latvijas iedzīvotāju veselību ietekmējošo paradumu pētījums. (engl. - Health Behaviour among Latvian Adult Population). 13 reports in 1998-2022. Available: <https://www.spkc.gov.lv/lv/veselibu-ietekmejoso-paradumu-petijumi>

²⁸ Sodium is a mineral, and one of the chemical elements found in salt.

²⁹ These estimates were calculated by the Institute for Health Metrics and Evaluation and reported in the WHO (2023) report.

average³⁰. The average salt intake of women (8.1 g/day) exceeds the recommended amount by more than half. The consumed amounts of NaCl were calculated on the bases of excreted Na over 24h urine. According to the 48h-food recall, men consumed an average of 7.1 g and women 5.4 g of salt. Estimated salt consumption based on 24-hour urine samples exceeded the amount of salt calculated from the 48h-food recall for both men and women. The difference may arise from that the data in the food diary are not entered accurately enough by the participant (underestimation of food quantities, inaccurate estimation of the amount of salt added to food during cooking and eating, forgotten foods etc.) or the incompleteness of the formation in the food composition database (many recipes do not contain salt).

The Institute of Food Safety, Animal Health and Environment "BIOR" (2021) found that approximately 70% of Latvia's population consumes more salt daily than recommended. Men have the highest intake, averaging 12.8 g per day—significantly above the recommended 5 g. Women also exceed the recommended amount, with an average daily intake of 8.9 g.

WHO recommends several sodium-related best buys policies as practical actions that should be undertaken immediately, to prevent cardiovascular disease and its associated costs. Sodium-related **best buys policies** include (see WHO, 2023b):

- lowering sodium content in food products (reformulation);
- implementing front-of-pack labelling to help consumers select food products with lower sodium content;
- conducting mass media campaigns to alter consumer behaviour around sodium;
- implementing public food procurement and service policies³¹ to reduce sodium content in food served or sold.

The WHO allocates a Sodium Country Score from 1 (the lowest level) to 4 (the highest level) to each WHO Member State based on the level of implementation of sodium reduction policies and other measures (WHO, 2023b). **Lithuania** is one of the three countries in the WHO European Region along with the Czech Republic and Spain having the top score 4. These countries have at least two mandatory measures implemented for sodium reduction and mandatory declaration of sodium content on all pre-packaged food, and implementation of all WHO sodium-related best buys for tackling noncommunicable diseases. All three countries implement mandatory public food procurement and service policies and marketing restrictions. Lithuania implements a voluntary reformulation which targets for sodium content in the long list of food products³².

Estonia and Latvia are in the score of 3 as well as the largest proportion of European Region Member States (47%) with at least one mandatory policy for sodium reduction and a declaration

³⁰ The consumed amounts of NaCl calculated on the bases of excreted Na over 24h urine

³¹ Healthy public food procurement and service policies set nutrition criteria for food served and sold in public settings (a limit on the use of food typically high in sodium, a maximum permissible amount of sodium in a serving of food, or a prohibition against placing saltshakers on tables). These policies can cover the entire process of purchase, provision, distribution, preparation, service and sale of food to ensure each step meets healthy criteria.

³² The list of food products includes chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; bread, bread products and crisp breads; fresh or dried pasta, noodles, rice and grains; sauces, dips and dressings.

of sodium on pre-packaged food is in effect. Both Estonia and Latvia implement public food procurement and service policies. Latvia is among 9 countries in the WHO European Region that have at least two mandatory measures (mandatory limits on sodium in food³³, public food procurement and service policies), but do not implement all the best buys, which would result in an uplift to score 4 - in particular, front-of-pack labelling.

1.3. Consumption of non-alcoholic drinks

Since there is no evidence so far that people from Baltic countries are going to neighbouring countries to purchase non-alcoholic drinks, we use data on the sales volume of non-alcoholic beverages (1) published by UNESDA (2024) and (2) in the modern trade retail market obtained from AC Nielsen as a proxy for consumption. Modern trade retail markets include supermarkets, hypermarkets, and large-format stores.³⁴

In 2023 in the Baltic countries per capita sales of non-alcoholic drinks³⁵ accounted for 57–70%³⁶ of the average level across EU countries, while per capita sales of soft drinks (non-alcoholic drinks excluding packaged water, dilutables and juice & nectars) accounted for 74.8%–76.1%³⁷ of the EU average level. The consumption structure is different from the EU average. The data shows that packaged water³⁸ makes up roughly half (47.8%) of total non-alcoholic drinks sales on average in the EU. This is similar to the share of packaged water in Latvia (45.5%) and Lithuania (41.9%), but in Estonia the share is 20 percentage points smaller. In the Baltic countries, the share of juice and nectars, and soft drinks in total consumption is higher, but the share of dilutables is much lower (except for Estonia) than on average in the EU countries.

In 2023, Lithuania and Estonia had the highest per capita sales of non-alcoholic drinks³⁹ in the modern trade retail market among the Baltic countries (128.1 and 127.8 litres per capita respectively; see Figure 0.7 in Annex 1), followed by Latvia (112.9 litres). The structure of sales of non-alcoholic drinks is very similar: sales of water account for the largest share (approximately half) of total sales of non-alcoholic drinks. The second largest category is CSDs, accounting for 22–25% of total sales of non-alcoholic drinks. Juices are the third largest category, being more important in Estonia (with 16% of total sales) than in the other two Baltic countries (10–12%). The

³³ Mandatory limits on sodium content in bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes.

³⁴ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, to make a comparison between all three Baltic countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

³⁵ UNESDA classifies non-alcoholic drinks into 4 categories: (1) soft drinks (include CSDs, still juice drinks, iced tea drinks, iced coffee drinks, sport drinks, energy drinks, flavoured water and enhanced water); (2) packaged water; (3) dilutables; (4) juice & nectars.

³⁶ Estonia: 57.2%; Latvia: 69.5%; Lithuania: 61.5%.

³⁷ Estonia: 74.8%; Latvia: 76.1%; Lithuania: 75.8%.

³⁸ Packaged water does not include bulk/HOD water, flavoured and enhanced water.

³⁹ Soft drinks include the following types of drinks: water (both flavoured and unflavoured), CSDs, juice drinks, energy drinks, sport drinks and vitamin drinks, ice tea and kvass.

share of kvass, ice tea, energy drinks, sport drinks and vitamin drinks accounts for 9–11% of total sales of non-alcoholic drinks (see Figure 0.8 in Annex 1).

Figure 0.9 in Annex 1 highlights that in 2023 compared to 2019 per capita sales of energy drinks experienced the greatest growth compared to other non-alcoholic drinks in all Baltic countries (by 112% in Latvia, 108% in Estonia and 86% in Lithuania). Sport drinks and vitamin drinks also experienced great growth in Lithuania (by 111%, compared to 50% growth in Latvia and 10% growth in Estonia). Per capita sales of CSDs increased the most in Estonia (by 18%) followed by Lithuania with a 9% increase and Latvia with just a 2% increase.

In 2023 light (no- and low-calorie) CSDs accounted for 12.9% of total sales of CSDs in Lithuania, 15.9% in Latvia and 17.5% in Estonia (see Figure 0.10 in Annex 1). In the last 5 years, this proportion has slightly increased in all 3 Baltic countries. In 2023 compared to 2019, it increased by 0.9 percentage points in Lithuania, 2.1 percentage points in Estonia and the largest increase is in Latvia by 3.7 percentage points.

According to the State Revenue Service of Latvia (2024), 66.3% of soft drinks released for consumption in 2023 contained less than 8 g sugar per 100 ml. In 2022, this proportion was 63.2%, so one could assume that this proportion will continue to grow.

1.4. Sugar intake

Research conducted by World Cancer Research Fund International (2015) showed substantial and consistent evidence that energy-dense foods, sugary drinks and ‘fast foods’ contribute to weight gain, overweight, and obesity by promoting excess energy intake.

Sugar is present in our diets in several forms: (i) naturally occurring in the structure of foods like fruits and vegetables; (ii) naturally present in milk and dairy products; (iii) as "added sugars," which are sugars and syrups added to foods and drinks during processing and preparation; and (iv) as "free sugars," which include both added sugars (such as sucrose or table sugar, including monosaccharides and disaccharides added by manufacturers, cooks, or consumers) and sugars naturally present in honey, syrups, fruit juices, and fruit concentrates.

The WHO provides the guidelines (WHO, 2015a) on the intake of "free sugars." According to the WHO, consuming more than 10% of total daily calories (energy intake) from free sugars is too much for both children and adults. For an average daily diet of 2 000 calories, 10% equates to about 50 g of sugar or roughly 12.5 teaspoons. For additional health benefits, the WHO recommends reducing sugar intake to below 5% of total daily calories, which is about 25 g of sugar, or approximately 6 teaspoons.

Centre for disease prevention and control (2015) presents the examples of sweetened beverages and food products and their sugar content. A small can (330 ml) of sweetened carbonated drink contains seven teaspoons of sugar. A small can (330 ml) of sweetened carbonated drink contains seven teaspoons of sugar. If the sweetened drink comes in a one-litre or even a one-and-a-half-litre package, it can contain up to 35 teaspoons of sugar. A 160 ml cup of yoghurt can contain as much as seven teaspoons of sugar. 120 ml of ice cream contains around 5 teaspoons of sugar. A

considerable amount of sugar is also added to ready-made instant coffee drinks and drinks sold in vending machines. One ready-made instant coffee drink contains an average of two teaspoons of sugar. A 30 g serving of breakfast cereal with sugar contains 7.8 g (2 teaspoons), and 15 g of ketchup contains 2.3 g of sugar (1 teaspoon). Two 330 ml cans of sweetened carbonated drink already exceed the daily intake of “free sugars”. These examples highlight how easy it is to exceed the recommended daily sugar intake, especially considering that many other common foods and drinks are also surprisingly high in sugar. Below is a list of 17 such foods and drinks that are particularly high in sugar (Healthline, 2023): *low-fat yoghurt; barbecue (BBQ) sauce* - around 33% of the weight of BBQ sauce may be pure sugar; *ketchup; fruit juice* - there can be just as much sugar in sugar-sweetened fruit juice as there is in a sugary soda drink; *spaghetti sauce; sports drinks* (a 591 ml bottle of a sports drink will contain 32.5 g of added sugar, or 9 teaspoons); *chocolate milk; granola* (100 g of granola can contain nearly 5–7 teaspoons of sugar); *flavoured coffees and coffee drinks; iced tea; protein bars; premade soup; breakfast cereal; cereal bars; canned fruit; canned baked beans* (254 g of baked beans contain about 5 teaspoons of sugar); *premade smoothies* (might contain over 50 g, or 13 teaspoons of sugar in a single 473 ml or 591 ml serving).

Based on EFSA (EFSA Panel on Nutrition, Novel Foods and Food Allergens, 2022) data, **the major contributor to the intake of added sugars** in nearly all European countries **is sugar and confectionery**, ranging for adults aged 18–64 years from 20% in Austria to 57% in Italy (48% and 54% in Latvia and Estonia respectively). For children aged 1–18 years sugar and confectionery contribute to 36 – 44% of added sugar intake in Latvia and 38 – 49% of added sugar intake in Estonia.

In Latvia, sugar and confectionery are followed by **fine bakery wares** (25% for adults aged 18–64 years and 16–23% for children aged 1–18 years) and processed fruits and vegetables (9% for adults aged 18–64 years and 10–16% for children aged 1–18 years). A significant source of added sugar for toddlers is **dairy products** (21%). **In Latvia, the contribution of sweetened soft and fruit drinks to total added sugar intake is 8% for adults aged 18–64 years and 3–7% for children aged 1–18 years.**

In Estonia the major contributor – sugar and confectionery – is followed by processed fruits and vegetables excluding beverages (11% for adults aged 18–64 years and 7–14% for children aged 1–18 years) and dairy products (11% for adults aged 18–64 years and 11–22% for children aged 1–18 years, with a higher proportion for younger children). **In Estonia, the contribution of sweetened soft and fruit drinks ranges from 10% for adults aged 18–64 years to 17–21% for adolescents aged 10–14 years (the proportion is slightly lower for children in other age groups: 16% for children aged 14–18 years and 11–12% for children aged 1–9 years).**

Structure of contribution of food categories to the mean free sugars intake by age groups in Latvia and Estonia is presented in Figure 0.13 and 0.14 in Annex 1.

This raises questions about the effectiveness of such targeted taxes in reduction of sugar intake and achieving public health goals. Policymakers could consider a coordinated and complex approach

which takes into account all sources of added sugar to encourage balanced diet and promote positive health outcomes.

2. Excise duties on non-alcoholic beverages and food products

2.1. Taxation of non-alcoholic beverages

In several EU countries and across the world governments tax consumption of sugar-sweetened beverages (hereafter – SSBs) with so-called “sugar taxes” or “soda taxes”. There are two main reasons for this. The first is levying excise duties as a budget revenue-raising tool. The second reason is increasing the relative price of the drink compared to other products to encourage reduced consumption of sugar-sweetened drinks and to promote healthy diets, reduce the risk of excess weight and obesity and the development of diet-related non-communicable diseases (NCDs) including type 2 diabetes, cardiovascular disease, dental caries, and osteoporosis (WHO, 2023c).

According to WHO (2023c), existing taxes differ widely in terms of design and level. However, the beverages that are taxed typically represent a significant source of free sugars and include non-diet sodas, fruit drinks, sports drinks, and energy drinks.

As of July 2022, at least 108 countries apply national-level excise taxes to at least one type of SSBs. Among them, 105 countries apply excise taxes on sugar-sweetened carbonated beverages (WHO, 2023c), which represent the most-sold type of SSBs globally⁴⁰ and in each WHO region. According to WHO (2023c) analysis, 35.8% of WHO members states in the European Region apply excise taxes to sugar-sweetened carbonated beverages.

In Europe as of 2024⁴¹ taxes on sugar-sweetened non-alcoholic beverages are implemented in 14 countries – Belgium, Croatia, Finland, France, Hungary, Ireland, Latvia, Malta, Netherlands, Poland, Portugal, Romania, Spain (excise tax applied in the Catalonian region of Spain and the increased VAT rate applied all over Spain) and United Kingdom. Below we provide an overview of when the tax was introduced and what the applicable rates are.

- In **Belgium** excise tax is applied on non-alcoholic sugared and non-sugared beverage **since 1993**. There are twelve tax rates applied to different types of non-alcoholic beverages; the highest rate applied to sweetened beverages is EUR 11.92 per 100 litres⁴².
- In **Croatia** non-alcoholic beverages are taxed **since 2020**. The tax rate is EUR 1.33 per 100 litres for non-alcoholic beverages with 2–5 g of sugar per 100 ml, EUR 3.98 per 100 litres if the sugar content is 5–8 g /100 ml and EUR 7.96 per 100 litres if sugar content exceeding 8 g per 100 ml. In addition to these rates, there is a volume-base specific excise tax at the amount of EUR 2.65 per 100 litres of non-alcoholic beverage. Syrups and concentrates intended for the preparation of non-alcoholic beverages are similarly taxed at four rates

⁴⁰ Globally 194 countries are members of WHO. Available: <https://www.who.int/countries>

⁴¹ When listing the countries, we rely on the WHO (2023c) provided analysis and check whether the tax is still applied or is newly introduced in each European country as of 2024.

⁴² TETB Taxes in Europe Database https://ec.europa.eu/taxation_customs/tedb/#/home

based on sugar content. Higher tax rates are levied on energy drinks containing methylxanthine or taurine.⁴³

- In **Finland** excise duty is levied on sugared and non-sugared soft drinks **since 1940**. The tax rate is up to EUR 0.32 per litre, depending on the sugar content of the soft drink.⁴⁴
- In **France** excise duty is levied on non-alcoholic beverages with added sugar or sweeteners **since 2012**. In 2018 the flat rate was changed to sliding scale. The tax rate starts at EUR 0.03 per litre for drinks containing less than 1 g of added sugar per 100 ml and progressively rises to more than EUR 0.26 per litre for drinks containing 15 g of added sugar per 100 ml and EUR 0.0221 per each g per 100 ml for drinks containing more than 15 g per 100 ml (Olivier Allais, et.al., 2023). Intense sweeteners are taxed at the rate of EUR 0.0334 per litre. Soft drinks with both added sugar and sweeteners are taxed cumulatively. Tax rates are subject to inflation indexation.
- In **Hungary** a public health product tax (PHPT) is applied to food products containing unhealthy levels of sugar, salt and other ingredients as well as non-alcoholic beverages **since September 2011**. The tax rate for sugar-sweetened beverages is EUR 0.06 and EUR 0.02 per litre depending on the sugar content of the beverage.⁴⁵ The tax rate for energy drinks is EUR 0.16–0.96 per litre.
- In **Ireland** a sugar-sweetened drinks tax (excise duty) is applied since May 2018. The tax rate is EUR 16.26 per 100 litres on drinks with a total sugar content of 5 g or more, but less than 8 g per 100 ml or EUR 24.39 per 100 litres on drinks with a total sugar content of 8 g or more per 100 ml (The Office of the Revenue Commissioners, 2024).
- In **Latvia** excise duty is levied on non-alcoholic beverages with added sugar, other sweeteners or flavouring since December 1999. The tax rate is EUR 7.40 per 100 litres of non-alcoholic beverages with sugar content less than 8 g per 100 ml and EUR 17.5 per 100 litres of non-alcoholic beverages with a sugar content above 8 g per 100 ml and of energy drinks (Latvijas Vēstnesis, 2024).
- In **Malta** excise duty is applied to non-alcoholic beverages. The tax rate for waters offered for sale in non-returnable bottles is EUR 5 per 1 000 litres. The tax rate for other non-alcoholic beverages (excluding juices) offered in non-returnable bottles is EUR 40 per 1 000 litres.⁴⁶
- In **Netherlands** tax is applied since 1993. There is a flat tax rate of EUR 26.13 per 100 litres (the tax rate was increased in 2024) is applied to all non-alcoholic drinks, regardless of sugar content, including drinks with added low- and no-calorie sweeteners, juices and bottled water (JustDrinks, 2024a; Future of Food Institute, 2023).
- In **Poland** the sugar tax is levied on beverages containing added sugars, sweeteners and caffeine or taurine since January 2021. The tax rate is 0.50 PLN (0.12 EUR) per litre for a

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Hungarian public health product tax (hung. magyar népegészségügyi termékadó). Available: https://nav.gov.hu/pfile/file?path=/ugyfeliranytu/nezzen-utana/inf_fuz/2023/53.-informacios-fuzet---nepegeszsegugyi-termekado

⁴⁶ European Commission. Excise duties. Malta. Available: <https://trade.ec.europa.eu/access-to-markets/en/content/excise-duties>

sugar content equal to or less than 5 g per 100 ml of beverage or for containing in any quantity at least one sweetener, PLN 0.05 (0.01 EUR) for each g of sugars exceeding 5 g in 100 ml of beverage) (PwC Poland; KPMG, 2021).

- In **Portugal** an excise tax sugar tax is levied on non-alcoholic drinks containing added sugar or artificial sweeteners since February 2017. The tax rate is EUR 1.16 per 100 litres for drinks with sugar content less than 25 g /litre, EUR 6.95 per 100 litres for drinks with sugar content equal to or above 25 g /litre, but less than 50 g /litre, EUR 9.26 per 100 litres for drinks with sugar content equal to or above 50 g /litre, but less than 80 g /litre. EUR 23.18 per 100 litres for drinks with sugar content is equal to or greater than 80 g per litre (PwC Portugal).
- In **Romania** an excise duty is levied on soft drinks since January 2024. The tax rate is EUR 8.04 (RON 40) per 100 litres for soft drinks with a total sugar content between 5 g-8 g/100 ml and EUR 12.06 (RON 60) per 100 litres for soft drinks with a total sugar content exceeding 8 g/100 ml. Food products with the total sugar content of which is at least 10 g/100 g of product, other than bread and biscuits as well as alcoholic drinks and non-alcoholic beer is subject to increased VAT rate of 19% (previously 9% (CMS Law-Now, 2023; Schonherr, 2023; Great Italian Food Trade, 2023)).
- In **Catalonian region of Spain** excise tax is levied on sugar-sweetened beverages since May 2017. The tax rate is EUR 0.08 per litre for beverages with sugar content 5 – 8 g per 100 ml, and EUR 0.12 per litre for beverages containing more than 8 g per 100 ml. In January 2021 Spain implemented a VAT increase for sweetened and sugary drinks from 10% to 21% (Euromonitor International, 2021; Obesity Action Scotland, 2021).
- **United Kingdom** the soft drinks industry levy is applied since 2018. The levy is applied to drinks (a content of 1.2% alcohol or less) with at least 5 g of sugar per 100 ml (other than fruit juice, vegetable juice, and drinks containing at least 75% milk). The levy of GBP 0.24 per litre is levied on drinks containing 8g of sugar per 100ml and GBP 0.18 per litre on drinks with 5–8g of sugar per 100ml (London School of Hygiene & Tropical Medicine, 2024).

Table 0.1 in Annex 1 summarizes the design and levels of taxes (both excise taxes and VAT) levied on non-alcoholic beverages containing added sugar or artificial sweeteners in the EU and the United Kingdom, as of 2024.

In the Section 2.4 we report the estimates of the shares of excise taxes and VAT in the retail price for 330 ml of an internationally comparable brand of sugar-sweetened carbonated beverage in the EU countries. We also compare PPP-adjusted prices of a selected beverage and PPP-adjusted excise tax levels.

2.2. Intentions regarding the introduction of the tax on soft drinks in other EU countries

While as of 2024 the taxes on sugar-sweetened non-alcoholic beverages are already implemented in 14 European countries, in some other European countries, the debate about the need for such a

tax is ongoing, or a law on the introduction of the tax has already been passed and is awaiting its implementation.

Estonia planned to introduce a tax on sugar-sweetened non-alcoholic beverages in 2026 with the aim of reducing the use of sugar and sweeteners in sugary drinks (Riigokogu – Parliament of Estonia, 2024). The tax implementation was cancelled for the moment by a new governmental coalition as the result of their Coalition agreement 2024-2027 (Postimees, 2024; Government of Republic of Estonia, 2024). Similar to the soft drink tax applied in Latvia, the tax grading was supposed to be based on sugar content and the use of sweeteners. Soft drinks with a sugar content of less than 5 g per 100 ml and no added other sweeteners have been added supposed to be exempted from tax.

Slovakia plans to levy a tax on all sweetened (sugared and with low and no-calorie sweeteners) soft drinks in 2025 (Ernst & Young, 2024; BDO Global, 2024). The tax rate will depend on the category to which the soft drink belongs: EUR 0.15 per litre for packaged drinks ready for consumption, EUR 0.30 per litre for packaged drinks with a high caffeine content, EUR 1.05 per litre or EUR 4.30 per kg for packaged concentrated substances intended for the preparation of drinks.

As of 2024, **Norway** still taxes sugar itself while tax on sugar-sweetened soft drinks was repealed in July 2021 and tax on chocolate and candy was repealed in January 2021. There are some professional organizations backing the call for sugar taxes, including Norway's national cancer foundation (Kreftforeningen), the national associations for both diabetes and heart and lung disease, and the Norwegian Dental Association (Tannlegeforeningen) (Norway's news in English, 2022).

In **Italy** the sugar tax with the flat rate, applied to sugared beverages and beverages containing low- and no-calorie sweeteners, was originally due to be applied at the start of 2020. It has been postponed at least 8 times and is now being lined up for July 2025 (JustDrinks, 2024b).

In 2024 the Health Minister of **Czech Republic** has suggested a new consumption tax on drinks with a high sugar content to combat their negative health effect. Despite this opposition and mixed reaction, the Health Minister is confident that the government coalition will agree on the new tax this year, with a potential implementation date in mid-2025 (Expats_cz, 2024). In 2023 the government has already increased the VAT rate on soft drinks from 15 to 21%.

In 2024 sugar tax proposal to combat obesity fails in **Luxembourg** parliament (RTL Today, 2024). One of the mentioned reasons for it is a concern that in a such small country there is a risk that consumers will buy their food across the border or resort to cheap food.

In **the Netherlands**, the debate around sugar taxation has also evolved. Since 1993, a flat rate of has applied to all non-alcoholic drinks, regardless of sugar content. Taxation of dairy, soy—based drinks, fruit and vegetable juices and mineral waters is under consideration. There is an ongoing discussion for a differentiated broad-based sugar tax applied to non-alcoholic beverages. 2026 is flagged as the earliest possible year for its introduction (JustDrinks, 2024a).

2.3. Taxation of products with high level of sugar, salt and saturated fats

Finland was one of the first countries in the world that in 1926 started to tax chocolate and candies, and non-alcoholic beverages in 1940. In 2000, however, the tax on sweets (components of chocolate and candies) was abolished. One of the cited reasons for abolishment is the granted tax exemption for products containing xylitol (a sugar substitute), which according to the European Commission opinion unfairly discriminated against other non-sugar sweeteners (WHO, 2015b). Later, in 2011, the sweets tax was reinstated and was applied to confectionery, chocolate and ice cream, while excluding bakery products, yoghurt, puddings and other such products. As of 2017, the sweets tax was abolished because of a warning from the European Commission that the tax is incompatible with EU State aid rules (Confectionery News, 2016), while excise tax on non-alcoholic beverages remains to be in force.

A recent survey conducted by research institute Verian on behalf of Terve Päivä ry (Helsinki Times, 2024), reveals that a clear majority of Finns support the reinstatement of a sugar tax targeting products high in sugar content, such as candies and biscuits (Helsinki Times, 2024). Sugary drinks account only for about 20% of the sugar intake among Finns. Expanding the tax to include other high-sugar products is expected to promote healthier consumption habits and address the obesity crisis considered as one of the major current challenges to public health. Tax grading based on sugar content would also encourage the reduction of sugar in products.

In October 2011 **Denmark** was one of the first countries to impose a tax on saturated fat, where the taxable base included all foods containing saturated fat (e.g., meat, dairy, edible oils and fats, margarine and blended spreads, among other items), excluding products containing less than 2.3 g of fat per 100 g. Nevertheless, barely a year later, this effort had failed spectacularly. The tax was abandoned in 2012 due to adverse effects on cross-border shopping, competition and employment.

In 2024 **Romania** increased a VAT rate up to 19% (previously 9% (CMS Law-Now, 2023; Schonherr, 2023; Great Italian Food Trade, 2023)) for food products with the total sugar content of which is at least 10 g/100 g of product, other than bread and biscuits as well as alcoholic drinks and non-alcoholic beer. In the same year Romania introduced an excise duty levied on non-alcoholic beverages with added sugar above 5g per 100 ml.

In 2011, **Hungary**, faced with the problems of high prevalence of obesity and one of the world's highest levels of salt consumption per capita, introduced a public health product tax (PHPT) that was imposed on non-alcoholic beverages and food products with a high saturation of fats, salt and sugars. Considering that currently Hungary is the only country in Europe imposing such tax, tax objects and rates are discussed in more detail in the Section 3.3. In econometric analysis (see section 4) we use the Hungarian tax rates as a basis to define various scenarios of tax levels.

A case outside the EU is **Mexico**, where, since 2014, the government has introduced a 1 peso-per-litre tax (equivalent to roughly a 10% price increase) on sugar-sweetened beverages (SSBs) and an 8% ad valorem tax on non-essential energy-dense foods. The SSB tax applies to all industrialized non-alcoholic beverages with added sugar, including concentrates and powders. The food tax targets non-essential items with an energy density of 275 kcal/100 g or more, such as chips, snacks, candies, sweets, chocolate, puddings, peanut and hazelnut butter, ice cream, ice

pops, and cereal-based products with added sugar (Confectionery News, 2016, Global Food Research Program, Batis et al., 2023).

2.4. Price and tax levels of soft drinks

The average retail prices of soft drinks and the amount of excise duty levied on soft drinks vary between European countries. This section is devoted to a comparison of price levels (PPP-adjusted) for 330 ml of an internationally comparable brand of sugar-sweetened carbonated beverage. For this comparison, we use data on prices collected by WHO (2023c) in July 2022 – June 2023. We also present the estimates of the share of excise taxes and VAT in the retail price for 330 ml of an internationally comparable brand of sugar-sweetened carbonated beverage. A similar assessment is provided by the WHO (2023) using the tax rates in force in June 2022. We make an update for the EU countries and two non-EU countries (Norway and the United Kingdom) using the tax rates in force as of July 2024. The tax share indicator represents the proportion of indirect taxes (excise tax and VAT) in the retail price of the selected soft drink. This indicator allows standardized comparisons between countries with varying tax designs.

WHO (2023c) justifies the selection of *330 ml of an internationally comparable brand of sugar-sweetened carbonated beverage* for the analysis as follows. Sugar-sweetened carbonated beverages represent the most sold type of SSBs globally. The internationally comparable brand was identified because of its representativeness as the most-sold brand of sugar-sweetened carbonated beverages globally. The standardized volume of 330 ml was used as a mid-point volume for bottles or cans with a container size ranging between 300 ml and 360 ml. These container types and this range of volume sizes are the most prevalent globally for individual-sized containers of the internationally comparable brand considered⁴⁷. According to data collected selected beverage contains 10–11.3 g of sugar per 100 ml of beverage depending on the country.

After adjusting for differences in purchasing power (see Table 0.2 and Table 0.3 in Annex 1), the retail price of *330 ml of an internationally comparable brand of sugar-sweetened carbonated beverage* was the highest in Croatia (PPP\$ 2.04), Finland (PPP\$ 1.92) and Slovakia (PPP\$ 1.87). In Latvia the PPP-adjusted price was the 5th highest in the EU (PPP\$ 1.78), while Estonia is ranked the 4th (PPP\$ 1.81). Lithuania takes the 15th position with a PPP-adjusted price of \$1.27. **The median retail price for the selected type of beverage in the EU was PPP\$ 1.35.**

The results of the calculations discussed below are available in Tables 0.2 and 0.3 in Annex 1.

The excise tax share in the retail price of selected type of beverage varied from 1.8% to 11.3% in the EU with the median excise tax share⁴⁸ equal to 6.2%. PPP-adjusted excise tax levels were highest in Poland (PPP\$ 0.14 or 8.8% of retail price) and Portugal (PPP\$ 0.14 or 10.1% of retail price) and lowest in Malta (PPP\$ 0.01 or 1.8% of retail prices). In Latvia, PPP-adjusted excise tax level was equal to **the median excise tax level of EU countries (PPP\$ 0.09).**

⁴⁷ According to WHO (2023c) based on data from 99 countries for 2021, source: Euromonitor International, Passport database (<https://www.euromonitor.com/our-expertise/passport>).

⁴⁸ Median value among 11 countries in EU applying excise tax on sugar-sweetened non-alcoholic beverages.

The VAT share in the retail price of the selected type of beverage varied from 2.9% to 21.3% in the EU with the median VAT share equal to 17.4%. PPP-adjusted VAT levels were highest in Croatia (PPP\$ 0.41 or 20% of retail price) and lowest in Luxembourg (PPP\$ 0.03 or 2.9% of retail price). Estonia has the 3rd highest PPP-adjusted VAT level (PPP\$ 0.33 or 18% of the retail price) and Latvia has the 6th highest PPP-adjusted VAT level (PPP\$ 0.31 or 17.4% of retail price). Lithuania is ranked 13th among the EU countries with the PPP-adjusted VAT level equal to the median in the EU (PPP\$ 0.22 and 17.4% of retail price).

The total tax burden (excise tax and VAT) of the selected sugar-sweetened carbonated beverage in the EU varied from 2.9% to 30% of the retail price. The median tax share was 17.6% of the retail price and the median amount of indirect taxes in the EU was PPP\$ 0.22. The total PPP-adjusted amounts of indirect taxes were the highest in Croatia (PPP\$ 0.49 or 23.9% of the retail price), Poland (PPP\$ 0.43 and 27.5% of the retail price) and Latvia (PPP\$ 0.40 or 22.2% of the retail price). Estonia and Lithuania were ranked at the 9th and 14th positions respectively⁴⁹.

3. Broadening the tax base

In this section we focus on the potential for broadening the sugar tax base in Latvia (and the introduction of a broad sugar tax base in Lithuania and Estonia). With this aim, we examine

- which products could be subject to sugar tax to be compatible with the EU state aid rules
- how effective the sugar tax proved to be in reducing the consumption of excise goods as well as in reduction of sugar and salt intake
- international evidence whether citizens cross the borders with the aim of buying cheaper sugar and salt rich products and soft drinks with added sugar
- what goods are taxed by the public health product tax (PHPT) in Hungary which is the only country in Europe that taxes food products containing unhealthy levels of sugar, salt and other ingredients.

3.1. Compatibility with the EU State aid rules

According to the European Commission, any tax measure that favours certain undertakings or the production of certain goods over others, which are comparable (or contain just as much sugar), constitutes state aid (Confectionery News, 2016). Favouring some products over others through taxation is allowed only if can be justified by reasons of general economic development. Thus, taxing standalone products with high sugar content like confectionary is not allowed, but there is an exception permitting taxation of soft drinks. In favour of taxing soft drinks without taxing other foods with a high sugar content, the Commission (European Commission, 2018) notes that soft drinks are the major source of calories with no nutritional value. Soft drinks in particular can lead to excessive consumption and pose a higher risk of obesity also compared to other solid food. However, there is a lack of evidence how much sugar is consumed through consumption of other

⁴⁹ Estonia: PPP\$ 0.33 and 18% of retail price. Lithuania: PPP\$ 0.22 and 17.4% of retail price.

food products, and whether it is enough to tax only beverages to normalize sugar intake of population.

In **Finland** the sweet tax was abolished twice because of its incompatibility with the EU state aid rules. In 2000, the tax on sweets (components of chocolate and candies) was abolished. One of the cited reasons for abolishment is the granted tax exemption for products containing xylitol (a sugar substitute), which according to the European Commission opinion unfairly discriminated against other non-sugar sweeteners (WHO, 2015b). In 2017, the sweets tax in Finland was abolished because of a warning from the European Commission that the tax is incompatible with EU State aid rules (Confectionery News, 2016) since the sweets tax was applied to confectionery, chocolate and ice-cream, while excluding bakery products, yoghurt, puddings and other such products (WHO, 2015b). While the sweets (or confectionary) tax was applicable, such a choice of a tax base resulted in new biscuit products with a high sugar content resembling candies but not being taxed as candies (Confectionery News, 2016).

3.2. International evidence on effectiveness of taxes in reducing consumption

In general, taxes on sweetened drinks are effective in reducing consumption in the short term. For instance, a study by Powell L.M. et.al. (2013) concluded that if an excise duty raises retail price of a soft drink by 20%, consumption of the taxed beverages could also decrease by 20%. Theoretically, such taxes could help reduce obesity risks and improve health outcomes, but only if consumers do not switch to cheaper substitutes or other sugary products. According to the OECD (2019), taxes could even be counterproductive given the unforeseeable substitution effects: “It is difficult to predict how consumers will react to price changes caused by taxation. Some may respond by reducing their consumption of healthy goods in order to pay for the more expensive unhealthy goods, thus defeating the purpose of the tax. Others may seek substitutes for the taxed products, which might be as unhealthy as those originally consumed”.

Le Bodo et al. (2022) discussed the impact of soft drink taxation on prices and purchasing behaviours, and concluded that ex-post evaluation studies reveal that the rate at which taxes are passed on to prices varies significantly, from less than 50% for sugar-sweetened beverage (SSB) taxes implemented in local jurisdictions in the United States to more than 100% in countries like Chile, Denmark, Mexico, and Portugal. This variability is largely attributed to differences in tax design and market structures.

A tax on sugar-sweetened soft drinks was introduced in 2017 in **the Spanish region of Catalonia**. The tax was set at a rate of 8 centimes per litre for beverages with a sugar content of 5 to 8 g per 100 ml and 12 centimes per litre for beverages with higher sugar content, which was expected to raise the price between 10 and 20% on average, depending on sugar content and container size. Research that surveyed citizens of Barcelona before and a year after the introduction of the tax suggests that the tax was passed through to consumers, **with mean price rose by 8.3% for small-sized containers (less than 1 litre) and 17.5% for large-sized containers**, using the change in prices in Madrid over the same period as reference for comparison purposes. The greatest price rise, 26.3%, was for taxed own-brand beverages in large-sized containers. Consumption of the taxed beverages fell by 39% in Barcelona when compared to Madrid, where no tax on sugar

beverages was applied. It is stated that among those who reduced the consumption of taxed drinks two-thirds claimed that it was motivated primarily by the increased retail price, following rising health awareness as a second motive (Royo-Bordonada, M.Á. et.al., 2019).

A study by the Mexican National Institute of Public Health and the University of North Carolina (Colchero M.A., et.al., 2017) evaluated the first two years of Mexico's sugar-sweetened beverage tax, introduced in 2014. Evidence for 2014 showed that on average in urban areas, the tax was fully passed on to consumers through increased prices. The price increase was greater for carbonated sweetened beverages (11%) and lower for non-carbonated sweetened beverages (3%) (Colchero, M.A. et. al., 2015). The results (Colchero M.A., et.al., 2017) show an average reduction of 7.6% in the purchase of taxed sugary drinks during 2014 and 2015, with the most significant reduction of 11.7% seen among households with the fewest resources. The results of the study showing a greater reduction in purchases of sugar-sweetened beverages in Mexico in the second year after implementation of the tax on them suggest that in the case of these beverages, the long-term impact of a price change may also be larger than the short-term effect. The study also noted a 2.1% increase in the purchase of untaxed beverages, particularly bottled water.

Building on these findings, Aguilar et al. (2018) conducted a more detailed analysis and found a 100% pass-through of the sugary drink tax to consumer prices and a 66% pass-through for the high-caloric food (HCF) tax in Mexico. Despite a 6% decrease in sugary drink consumption, overall calorie intake remained unchanged due to a substitution effect, where consumers shifted their purchases toward non-taxed products and smaller unit sizes, particularly for sugary drinks. While sugar consumption decreased by 2%, there were increases in the consumption of saturated fat (2%) and cholesterol (6%). The study suggests that to achieve better health outcomes, such taxes **need to be more targeted and designed to minimize substitution effects**. Policymakers might also consider taxing specific nutrients, such as calories, directly rather than applying a broad tax on categories of products.

Another example of the potential impact of such tax comes from the Great Britain. The Soft Drinks Industry Levy, introduced in the United Kingdom in April 2018, is a two-tiered tax that charges producers based on the sugar content in their drinks, with different rates for varying sugar levels. Drinks containing more than 8 g of sugar per 100 ml are taxed at £0.24 (EUR 0.28) per litre, while those containing 5 to 8 g per 100 ml are taxed at £0.18 (EUR 0.21) per litre. For drinks with sugar levels above the taxation threshold, prices were not always increased to reflect the tax. The tax was passed on to consumers only for drinks with more than 8 gr of sugar per 100 ml, resulting in an average price increase of £0.075 (EUR 0.089) per litre (Obesity Evidence Hub, 2024). Manufacturers responded to the tax by widely reformulating their products to reduce sugar content. This reformulation directly reduced the amount of sugar consumed per household and decreased childhood hospital admissions for carious tooth extractions. Specifically, the average amount of sugar consumed from soft drinks per person per week dropped by 19.2 g in 2018 and 12.9 g in 2019 (Allais, Enderli, Sassi, & Soler, 2023).

A sugar tax may be more effective when imposed on a wider range of products. Expanding the tax to a broader range of products could also enhance its effectiveness due to a cumulative positive multiplier effect. Taxation on one category can influence the consumption of related

products. For example, Cornelsen et al. (2017) assessed the impact of price increases on the demand for sweet snacks and sugar-sweetened beverages (SSBs) in the Great Britain. They found that raising the price of chocolate and confectionery led to significant reductions in the purchase of other soft drinks and sweet snacks, creating a cumulative positive multiplier effect. Specifically, a 10% price increase in sweet snacks, including chocolate, confectionery, cakes, and biscuits, generally led to an 8% reduction in the quantity of SSBs purchased. This suggests that taxing sweet snacks may have a more comprehensive impact on reducing overall sugar consumption than taxing SSBs alone.

Their research has also shown that both sweet snacks (such as chocolate, confectionery, cakes, and biscuits) and sugar-sweetened beverages (SSBs) exhibit high sensitivity to price changes. For example, the price elasticity for SSBs was found to be around -0.77, meaning a 10% price increase would lead to a 7.7% reduction in purchases. For sweet snacks, the price elasticity values were -0.74 for chocolate and confectionery, -0.69 for biscuits, and -0.66 for cakes. This indicates that these categories are almost as sensitive to price changes as SSBs. Therefore, the cumulative effect of increasing the prices of sweet snacks could lead to more significant reductions in their purchases compared to SSBs. The study underscores the importance of considering broader dietary impacts when designing fiscal policies. Taxation on one category can influence the consumption of related products, magnifying the overall health benefits.

Tax impact on the supply side might start even before the tax comes into force. Rogers et al., 2023 found that the greatest benefits, particularly to oral health, in the Great Britain occurred between the announcement of the tax and its implementation—during the two-year period when manufacturers made most of their recipe changes. **This demonstrates that incentivizing manufacturers and giving them sufficient time to reduce sugar in their products can lead to significant reductions in sugar consumption without negatively affecting sales.** However, reformulation efforts are likely to vary across firms depending on production cost constraints, consumer attachment to beverage taste, brand portfolios, competitive positions, and relationships with distributors and bottlers.

The impact of price increases varied across income groups, with lower-income households showing higher price sensitivity and a more pronounced reduction in the purchase of sweet snacks and SSBs compared to higher-income groups. **Given the higher price sensitivity among low-income households, targeted fiscal interventions in this group could be more effective in reducing the consumption of unhealthy foods and addressing health disparities. The regressive nature of the tax might be offset by redistributive transfers of tax revenues through, for instance, the funding of targeted health and prevention programmes.**

Global report on the use of sugar-sweetened beverage taxes, by WHO (2023c) identifies that revenues collected from taxes on products such as non-alcoholic beverages with added sugar, other sweeteners or flavouring bring comparatively small contribution to the budget. **Tax levels need to be high enough to trigger sufficiently high changes in price to alter the underlying affordability of the product (relative to income).** Conventional economic theory suggests that larger tax and price changes are likely to induce bigger changes in consumption. There are currently no set empirical best practices for effective SSB excise tax levels.

The McKinsey Global Institute (MGI, 2014) studied 44 possible interventions aimed at changing consumer behaviour to address the problem of growing obesity in the world, and estimated potential costs of implementing such interventions. One of MGI main findings is that **no single solution will be good in a fight with obesity, interventions should be used jointly within a systematic and comprehensive programme**. In addition, they concluded that the most effective obesity is to reduce portion size (“encouraging appropriate consumption through incremental (i.e., 1% to 5%) reductions in portion sizes and designing packaging to better delineate portion size to help moderate consumption”) and to reformulate the product (incremental reduction of calories in food products to drive subconscious reduction in consumption), while introduction of the tax scored only 13th out of 16 intervention areas.

A study conducted by New Zealand Institute of Economic Research (NZIER, 2017) provides a critical review of the evidence for sugar taxes as a fiscal instrument to improve health outcomes. The authors state that reduction in the rates of morbidity (incidence of disease, disability and ill-health) and mortality represents the desired welfare gain, rather than any reduction in consumption of sugar itself. They find no conclusive evidence that sugar taxes have a positive impact on health outcomes. In their review the authors conclude that studies which are using sound methods report reduction in sugar intake that is likely to be too small to generate health benefits and could easily be cancelled out by substitution with other caloric products. On the other hand, studies reporting a meaningful change in sugar intake assume no compensatory substitution. The abundance of substitutes with not only high sugar levels but also fats creates a risk that potential benefits from the tax are overturned and makes it hard to evaluate the real effect on health outcomes.

To conclude, the evidence from various international case studies demonstrates that taxes on sugar-sweetened beverages (SSBs) can be effective in reducing consumption in the short term, particularly when the tax leads to significant price increases that alter affordability. However, the effectiveness of these taxes depends on several factors, including tax design, market structure, and consumer behaviour. While some countries have seen notable reductions in SSB consumption following the implementation of taxes, the presence of substitution effects—where consumers shift to untaxed or alternative unhealthy products—limits the long-term health benefits. At the same time, the evidence on effectiveness of taxes in reducing sugar intake is inconclusive. According to New Zealand Institute of Economic Research (NZIER, 2017), studies which use sound methods report a reduction in sugar intake that is likely to be too small to generate health benefits and that can easily be cancelled out by substitution with other caloric products. On the other hand, studies reporting a considerable change in sugar intake assume no compensatory substitution. Abundance of substitutes with not only high sugar levels but also fats creates a risk that any potential benefits from the tax are overturned, and makes it hard to evaluate the true effect on health outcomes.

To maximize the impact of sugar taxes, policymakers need to consider a broader, more targeted approach. Expanding the tax to include a wider range of unhealthy products, such as sweet snacks, or targeting specific nutrients like calories, could reduce the likelihood of consumers substituting one unhealthy product for another. Additionally, providing a sufficient lead time for manufacturers to reformulate products and reduce sugar content can amplify the health benefits, as seen in the UK experience.

Further we will analyse in more details the impact assessments of the Hungarian Public Health Product Tax (PHPT) that has influenced similar public health taxes in other countries, making it a key case study in using fiscal policies to improve public health outcomes.

The PHPT is recognized by WHO (2015c) as an example of successful intersectoral action using a fiscal tool to promote healthier food choices and raise revenues for public health. According to the WHO (2015c), the Hungarian experience demonstrates that a fiscal instrument can effectively improve the population's nutrition behavior. Hungary's approach targeted a set of food items known for their negative impact on public health, making the tax more acceptable by population and justified. Beyond increasing prices, the tax raised awareness about unhealthy foods and shifted consumer behavior towards healthier choices. Successful implementation required cooperation across sectors, including public health experts, the Ministry of Health, the Ministry of Finance, and the WHO, to develop and refine the policy. The tax was refined multiple times after its initial implementation to address loopholes and ensure effectiveness, particularly against superficial recipe changes aimed at tax evasion.

The PHPT legislation was authored by a member of the ruling Fidesz party who was also president of the Strategic Alliance for Hungarian Hospitals. It was passed in parliament in July 2011 owing to the absolute parliamentary majority of the Fidesz party and came into force in Hungary on 1 September 2011 (UK Health Forum, 2019). The tax is an excise levy applied on the salt, sugar and caffeine content of pre-packaged foods for which there are healthy alternatives. Taxed products include sugar-sweetened beverages, energy drinks, confectionery, salted snacks, condiments, stock cubes, flavoured alcohol and fruit jams.

Justification for the tax in Hungary was extremely high rates of overweight and obesity with nearly two-thirds of Hungarians were overweight or obese, and the country had the highest per capita salt consumption in the EU. As a result, Hungary had one of the lowest life expectancy rates at birth in the EU: in 2011 it was just 71.2 years for men and 78.7 for women. To compare, in the EU life expectancy averaged at 76.6 years for men and 82.6 years for women (NYT, 2013).

Before the new tax was imposed in Hungary, some polls showed that Hungarians were in favour of using taxes to press for healthier eating habits (NYT, 2013).

The first impact assessment of the PHPT was conducted in 2012, one year after its implementation. Managed by the National Institute for Health Development with support from the WHO Regional Office for Europe, the assessment aimed to evaluate the initial effects of the tax on public health, consumer behavior, and economic outcomes. The assessment confirmed that the PHPT successfully met its public health objectives by reducing the consumption of taxed products. A representative survey of 1,000 people indicated high awareness of the tax, leading to a significant decrease in the consumption of unhealthy products. The tax also had a positive macroeconomic impact, generating significant revenue earmarked for public health programs. The study highlighted that effective public communication could further enhance the tax's impact by raising awareness and encouraging healthier consumption habits. The assessment showed that after the tax implementation, approximately 40% of unhealthy food product manufacturers changed their

product formulas to either reduce or eliminate unhealthy ingredients (28% and 12%, respectively). Manufacturer sales of taxable products fell by an average of 27% and prices for taxable products rose by an average of 29% (Ministry of Human Capacities et al., 2019).

The second impact assessment (National Institute for Food and Nutrition Science, 2015), conducted in 2014 as part of the National Diet and Nutritional Status Survey (OTÁP2014), sought to determine whether the initial impacts observed in 2012 were sustained over time. This study, which included a subsample from the European Health Interview Survey by the Hungarian Central Statistical Office, also examined the economic consequences of the tax on companies and consumers. The findings showed that the reduction in the consumption of taxed products observed in 2012 was sustained in 2014 across various demographic groups, including those with different health risks and socioeconomic statuses. For example, individuals with higher education levels were more likely to reduce consumption than those with lower education levels. The most common reasons for decreased consumption were the increased cost of taxed products and awareness of their negative health effects. A second impact assessment showed that overall consumers of unhealthy food products responded to the tax by choosing a cheaper, often healthier product (7–16% of those surveyed), consumed less of the unhealthy product (5–16%), changed to another brand of the product (5–11%) or substituted some other food (often a healthier alternative). Most people (59–73%) who reduced their consumption after introduction of the tax consumed less in 2014 than in previous years, suggesting that the reduction in unhealthy food consumption has been sustained. In its first 4 years of operation, the tax has generated HUF 61.3 billion (about US\$ 219 million) for public health spending (National Institute for Food and Nutrition Science, 2015). In 2013, this amounted to roughly 1.2% of government health expenditures in Hungary (WHO, 2015).

The tax continued to generate significant revenue, with the top 35 tax-paying companies contributing 83% of the total PHPT revenue. This revenue supported public health initiatives, including raising the wages of 95 000 healthcare workers, showcasing the tax's broader economic benefits. Detailed analysis revealed a noticeable shift towards purchasing cheaper or alternative products among consumers, particularly in lower socioeconomic groups. The assessment recommended targeted health communication and educational programs, especially for populations with lower education levels. Additionally, it suggested considering price subsidies for healthier food options like fruits and vegetables to counterbalance the financial impact of the PHPT on consumers. Raising the tax rate on certain products, such as sugar-sweetened soft drinks, was also recommended to further discourage their consumption and generate additional revenue for public health programs.

Long-Term Impact and Recommendations

Berezvai et al. (2024) explored the long-term impact of the PHPT on consumption. Their study, covering the period from 2010 to 2018, found that while the PHPT initially reduced the consumption of unhealthy foods, this effect diminished over time as disposable incomes grew. By 2018, the consumption of many taxed products had not only recovered but also surpassed pre-tax levels, particularly among higher-income groups. The study concluded that although the PHPT was effective in the short term, it was insufficient to achieve sustained reductions in unhealthy

food consumption, highlighting the need for more comprehensive interventions to address long-term dietary habits and inequalities.

Although taxes on unhealthy foods have proven effective in the short term, they may not be enough to reduce overall consumption in the long term, particularly as disposable incomes increase. Therefore, implementing comprehensive interventions is necessary to achieve sustainable positive changes in dietary habits. Adjustments to the tax rate over time, as disposable incomes rise, could also be a viable solution.

3.2.1. Demand elasticities

Taxing unhealthy foods is expected to reduce their consumption by influencing their own-price and cross-price elasticity. Price elasticity reflects how sensitive product demand is to changes in price. It can be defined as the percentage change in an outcome (such as food consumption or weight) resulting from a 1% change in price. Understanding price elasticity is crucial for accurately forecasting the impacts of a tax. When it comes to food, one should consider two types of elasticity: own-price elasticity (the change in demand for a product relative to a change in its own price) and cross-price elasticity (the change in demand for a product in response to a change in the price of another product). Essentially, the demand for food products is influenced by the price of the item, the prices of other food items, purchasing power (income), and other factors affecting personal preference (such as advertising).

Cross-price elasticity makes it particularly challenging to predict the consumption of specific foods because it is highly dependent on the prices of other foods. This complexity in predicting cross-price elasticity poses difficulties for data collection on food consumption trends, which likely explains the limited literature on this subject.

The estimated own price elasticities based on academic literature are summarized in Table 0.4 (See Annex 1).

3.2.2. Cross-border sales of products and soft drinks high in sugar

So far there is no evidence that people are going to neighbouring countries to purchase soft drinks in the Baltics. However, experience from some other European countries shows that consumers are prepared to cross borders to acquire sugary food and soft drinks where a significant price difference exists.

Norway significantly increased the tax rate on sugary food and non-alcoholic beverages in 2018 (an 83% increase for general sugar-containing ready-to-eat products and a 42% increase for non-alcoholic beverages with added sugar (Ministry of Finance of Norway, 2018; The Guardian, 2019). While domestic producers reported their sales falling by almost one third and the Norwegian government claimed a decline in consumption, Norwegians made 8.4 million and 9.6 million trips to Swedish border retail places in 2018 and 2019, respectively. Shopping spending by Norwegian consumers in 2018 increased by 4% and in 2019 by 2% amounting to the total spending of around 3 billion euros for two years (Statistics Norway, 2020). Norwegian local producers have repeatedly expressed concerns that an increase in the tax supports Swedish businesses and harms the local industry. In general, the experience of Norway raises the question whether the reported decline in

domestic sales represents a decrease in consumption given a high volume of cross-border sales (UNICEF, 2019).

As of 2024, **Norway** still taxes sugar itself. Tax on sugar-sweetened soft drinks was repealed in July 2021 and tax on chocolate and candy was repealed in January 2021. There are some professional organizations backing the call for sugar taxes, including Norway's national cancer foundation (Kreftforeningen), the national associations for both diabetes and heart and lung disease, and the Norwegian Dental Association (Tannlegeforeningen) (Norway's news in English, 2022).

Experience from **Denmark** shows that an increase in excise taxes for beer, wine, chocolate, candy, sodas, ice-cream, coffee, tea, and light bulbs in 2012 fuelled cross-border trade that enhanced illegal trade and reduced both local jobs and state revenue. Furthermore, the cross-border sales also had a negative impact on social and environmental aspects: it discriminated law-abiding citizens, led to over-consumption (as people stock-piled the product) and harmed the environment, because of the double transportation (products produced and exported from Denmark to Germany are being brought back to the origin country) and not recollected packaging. For these reasons in 2013 Denmark cancelled an introduction of a new sugar tax on other products with large amount of added sugar and abolished an excise duty on products with high concentrations of fats, reduced the tax rate on beer by 15%, and the tax on soft drinks by 50%, but in 2014 the country cancelled the tax on soft drinks (Danish Brewers's Association, 2017). In 2012 cross-border sales of beer and soft drinks grew by 12%, but after the reduction of the tax sales over the border decreased by 9% and 19%, respectively. At the same time, domestic sales decreased by 8% for beer and 7% for soft drinks in 2012, while in 2013 sales increased by 1% and 8% respectively (Danish Brewers's Association, 2015). Overall, according to the Danish Grocer's Trade Organisation, in 2012 nearly 60% of Danish households admitted that they travelled to Germany to shop beer and soft drinks, whereas in 2008 60% of households in Denmark reported that they have never travelled to Germany to shop (Euroactiv, 2012).

The experience of Norway and Denmark raises a question whether the tax on sugary food products and non-alcoholic beverages can indeed reduce consumption when there are significant differences in prices of such products between the bordering countries. Given high volumes of cross-border trade the true effect on consumption of the taxed goods is hard to estimate. The experience of the two countries also highlights the importance of excise tax policy coordination across neighbouring countries to discourage the cross-border trade and to improve the efficiency of excise tax.

3.3. What is taxed by the Hungarian public health product tax

The Hungarian public health product tax (hereafter –PHPT) is applied to wide range of pre-packed⁵⁰ drinks and products with a high saturation of sugar and salt (methylxanthine, taurine, ginseng, larginine in case of energy drinks)⁵¹:

- soft drinks (sugar sweetened or containing sweeteners);
- energy drinks;
- flavoured beer and alcopops,
- sweet or salty pastries,
- sweetened products,
- jam
- nuts
- sweetened cocoa powder
- salted snacks
- condiments.

The groups of products subject to the PHPT were determined based on the customs tariff code (or heading) as per Council Regulation No. 2658/87. Untaxed sugar-added foods primarily include fresh confectionary, fresh bakery products, and sugar-added foods from the categories under taxation but with lower sugar levels. The rate of the PHPT is a flat amount determined per litre or kg, depending on the product category, and is payable by the first domestic supplier, i.e. the manufacturer in the case of products manufactured in Hungary, or the importer in the case of imported products (Bird & Bird, 2022).

PHPT was announced to be aimed at (Ministry of Human Capacities et.al., 2019):

- promoting healthier nutrition among the Hungarian population
- encouraging food reformulation,
- taxing such products that carry proven health risks when consumed, thus directly reducing consumption of these products,
- enhancing the health status of the population from the income this tax produces (revenue earmarked to public health programmes).

Initially the PHPT was applied to non-staple pre-packaged foods. On 1 July 2022 the PHPT was extended to foodstuff and drinks with added sweeteners, as well as to new product groups, i.e., (i) “delicacies”, for example, muesli, cereals and candied fruits, and (ii) “pre-packed sweet and savoury pastry”.

Table 3.1 list the food products and beverages subject to PHPT and the tax rates that are applied as of 2024.

⁵⁰ Application of the tax only to packaged foods makes enforcement easier.

⁵¹ Hungarian public health product tax (hung. magyar népegészségügyi termékadó). Available: https://nav.gov.hu/pfile/file?path=/ugyfeliranytu/nezzen-utana/inf_fuz/2023/53.-informacios-fuzet---nepegeszsegugyi-termekado

Table 3.1. Food products and beverages subject to Hungarian PHPT and the tax rates that are applied as of 2024

Tax object		Unit	Tax rate, EUR
Soft drinks	more than 8 g of sugar per 100 ml, or containing both added sugar and sweetener	l	0.06
	less than 8 g of sugar per 100 ml and no other sweetener, or containing no added sugar but containing sweetener.	l	0.02
	Exemption: (i) nectars, fruit juices and vegetable juices containing 50 percent or more of fruit or vegetables, (ii) products made using 50 percent - or more - milk base material.		
Soft drinks in syrup form	more than 8 g of sugar per 100 ml, or containing both added sugar and sweetener	l	0.79
	less than 8 g of sugar per 100 ml and no other sweetener, or containing no added sugar but containing sweetener.	l	0.27
	Exemption: (i) extract-based syrup, (ii) syrup containing at least 50 percent fruit or vegetables		
Energy drinks	containing methylxanthine and methylxanthine content exceeds 15 mg per 100 ml (and cannot be classified in the following group). The sugar content of the energy drink is irrelevant.	l	1.00
	contains taurine, ginseng, larginine or a combination thereof of more than 10 mg per 100 ml. The sugar content of the energy drink is irrelevant.	l	0.17
Prepacked sweetened products	sugar content exceeds 25 g per 100 g of product, or also contains sweetener. Exemption: products which contain at least 20 g of honey per 100 g, provided that sugar content in the product does not exceed 40 g per 100 g.	kg	0.54
	containing sweetener, but no added sugar or containing no sweetener and its sugar content does not exceed 25 g per 100 g. Exemptions: (i) products which contain at least 20 g of honey per 100 g, provided that sugar content in the product does not exceed 25 g per 100 g, (ii) bread.	kg	0.17
	containing less than 40 g cacao per 100 g of product and more than 40 g sugar per 100 g of product or containing sweetener. Exemption: made with the use of 50 percent - or more - milk base material.	kg	0.54
	containing less than 40 g of cocoa per 100 g of product and (i) no sweetener, but containing added sugar, with a sugar content not exceeding 40 g per 100 g, or (ii) containing sweetener (no added sugar). Exemption: made with the use of 50 percent - or more - milk base material	kg	0.17
Sweetened cocoa powder	containing less than 40 g of cocoa and sugar content exceeds 40 g per 100 g of product.	kg	0.28
	containing less than 40 g of cocoa per 100 g, and no more than 40 g of sugar per 100 g.	kg	0.10
Snacks	salty snacks with salt content exceeding 1 g /100 g of product), or its saturated fatty acid content exceeds 2 g /100 g of product. This category includes snacks - made using grains, potatoes, vegetables or oilseeds, - baked, extruded, toasted, puffed or roasted, - product suitable for immediate consumption,	kg	1.00

	Exemptions: (i) bread and bakery products containing no more than 2 g of salt per 100 g (iii) products which fall under two other subcategories of snacks		
	made without the use of added fat and contains at least 90 percent oilseeds.	kg	0.23
	salt content no more than 1 g /100 g of product and which (i) contain added sugar and has a maximum sugar content 25 g / 100 g of product; (ii) do not contain added sugar, only sweetener, (iii) do not contain added sugar or sweeteners.	kg	0.17
Condiments	salt content exceeds 5 g per 100 g of product. Exemptions: (i) baby food, ready-to-eat soup, sauce, (ii) mustard, ketchup, (iii) non-dried, chopped or mashed, salted vegetable preparation, the salt content of which does not exceed 15 g per 100 g.	kg	1.00
Flavoured beer and alcopops	sugar content exceeding 5 g per 100 ml or contains both added sugar and sweeteners.	l	0.08
	less than 5 g of sugar per 100 ml and no other sweetener, or containing no added sugar but containing sweetener.	l	0.03
Jam	contains added sugar and its sugar content exceeds 35 g per 100 g or contains added sugar and sweetener	kg	1.99
	no added sugar, but contains sweetener or no sweetener, but contains added sugar and its sugar content does not exceed 35 g of sugar per 100 g.	kg	0.66
	Exemption: extra jam, extra jelly, marmalade and special quality marmalade.		
Nuts	contains added sugar and has a sugar content of more than 15 g per 100 g or contains added sugar and sweetener	kg	0.54
	contains sweetener, but no added sugar or contains added sugar, but no sweetener and a product containing no more than 15 g of sugar per 100 g.	kg	0.17
	Exemption: products containing at least 8 g of fiber per 100 g.		
Prepacked sweet or salty pastry	contains added sugar and the sugar content is more than 25 g per 100 g, or contains added sugar and sweetener	kg	0.54
	no added sugar, but they do contain sweeteners or no sweetener, but they contain added sugar less than 25 g per 100 g.	kg	0.17
	salt content exceeds 1 g per 100 g.	kg	0.54

Note: the tax rates were converted from HUF to EUR using exchange rate as of 16.07.2024 (published by the Central Bank of Latvia (latv. Latvijas banka).

Source: Hungarian public health product tax (hung. magyar népegészségügyi termékadó). Available: https://nav.gov.hu/pfile/file?path=/ugyfeliranytu/nezzen-utana/inf_fuz/2023/53.-informacios-fuzet---nepegeszsegugyi-termekado

4. Short term effect of excise tax on budget revenues: econometric analysis

The fiscal effect of a tax increase depends on the responsiveness of demand for an excise good to a change in its price, and on tax pass-through rate to a retail price⁵². The effect of the price change on demand is measured by price elasticity. Price elasticity is defined as the percentage change in demand in response to a 1% change in price. The greater the absolute value of the price elasticity, the higher the price sensitivity of demand. In turn, the tax pass-through to prices measures how much prices increase in response to an increase in the tax.

We simulate the budgetary effect of the introduction of the differentiated broad-based sugar tax using the approach applied in Pluta et. al (2020). First, we use monthly data on sales and prices of soft drinks and food products of selected categories in modern trade retail market⁵³ in 2019-2023 to estimate the price elasticity of demand in the Baltic countries. Modern trade retail market includes supermarkets, hypermarkets, and large-format stores. Data is obtained from AC Nielsen. Second, we simulate different scenarios of the expected budgetary effect using the estimated elasticities and assuming different degrees of tax pass-through rate to retail prices. To estimate the price elasticity of demand, we test dependency of the quantity of goods on two main factors: the price of the excise good and the income level, which is approximated by real GDP.

This section presents estimations of short-term effects on sales in various industries and budgetary effect, not long-term social welfare effects. Welfare effects in the long run are important, and they are promoted for the public, but tax collection could be important consideration in the short run.

4.1.Scenarios: tax object and tax rates

In order for the tax not to be distortive and not to be considered as state aid (see Section 3.1), as well as to effectively reduce consumption of sugar and salt-rich products (see Section 3.2), it should be applied at a broad range of such products. Currently Hungary is the only country in Europe imposing the tax on the pre-packaged food products with a high saturation of fats, salt and sugars. This tax has been successfully applied since 2011 (see section 3.2 on the effectiveness of the PHPT). Therefore, defining the scenarios that are considered when modelling the introduction of the new tax in the Baltic countries, we use the Hungarian PHPT as a good practice example. As a basis we use the list of product categories under taxation by the PHPT, two-tier tax system and the PHPT rates as of 2024 (see Section 3.3). In addition, we are also looking at other product categories (such sugar sweetened dairy products, sweetened cereals and vegetables and beans contained), expanding the tax base even more.

⁵² Tax incidence depends on the relative price elasticity of supply and demand. When supply is more elastic than demand, consumers bear most of the tax burden. When demand is more elastic than supply, producers bear most of the tax burden.

⁵³ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, in order to perform an analysis whose results can be compared across countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

In total we simulated one scenario for taxation of soft drinks and four scenarios for taxation of food products high in sugar and salt.

Soft drinks

We simulate the increase of excise duty on soft drinks in Latvia (increase of a high rate from EUR 14 to EUR 17.5 per 100 litres. That is how much the tax rate has been raised to soft drinks with a sugar content above 8 g per 100 ml in March 2024 in Latvia. For Lithuania and Estonia, we simulate the introduction of the excise duty applying the low and high rates that are in force in Latvia as of March 2024. Then we estimate the magnitude of the sales decline and the fiscal effect from such policy.

Food products high in sugar and salt

Scenarios 1 – 4 consider a two-tier tax system for almost all food categories high in sugar and salt (except condiments for which only a high rate is applied due to the high salt content, similarly as in Hungary). Scenarios differ from each other in the applicable rates.

Scenario 1 foresees that the low and high rates, applied to food products, are equal to the low and high rates applied to non-alcoholic beverages in Latvia as of March 2024, namely the low rate is EUR 7.40 per 100 kg if the salt or sugar amount in the food product is considered as low and EUR 17.5 if the salt or sugar content is considered as high.

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024.

The tax rates considered in scenarios 1 – 4 are summarized in Table 4.1.

Unfortunately, the retail price and sales time series used in the analysis (data is obtained from AC Nielsen) are not disaggregated into groups according to the sugar and salt content in the product and beverage. Therefore, for each scenario, we provide the lower and upper bound of the interval of how much sales will decrease due to new sugar and salt tax as well as of the estimate of the short-term impact on budget revenues.

In providing **the lower bound of the interval**, we assume that 100% of sales of a particular product or drink are subject to the new sugar and salt tax, but the amount of sugar and salt is low and therefore a lower rate is applied.

In providing **the upper bound of the interval**, we assume that 25% of sales of a particular product or drink are subject to the new sugar and salt tax, but the amount of sugar and salt is low and therefore a lower rate is applied. The remaining 75% of the sales volume is subject to the new tax, but the amount of sugar and salt is high and therefore a higher rate is applied to them.

Table 4.1: The scenarios considered in the analysis

Product categories	Unit	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
		Tax rates are equal to the rates applied to soft drinks in LV (as of 2024)		Hungarian case		Based on the Hungarian case (1.5x the tax rates of Scenario 2)		Based on the Hungarian case (2x the tax rates of Scenario 2)	
		Low rate	High rate	Low rate	High rate	Low rate	High rate	Low rate	High rate
Soft drinks (<i>Note: in all scenarios tax rates are equal to the rates applied to soft drinks in LV (as of 2024)</i>)	l	0.074	0.175	0.074	0.175	0.074	0.175	0.074	0.175
Product categories which are covered by the PHPT and in the Scenarios 1 – 4:									
Prepacked sweetened products	kg	0.074	0.175	0.17	0.54	0.255	0.81	0.34	1.08
Sweetened cocoa powder	kg	0.074	0.175	0.10	0.28	0.15	0.42	0.2	0.56
Salted snacks	kg	0.074	0.175	0.17	1.00	0.255	1.5	0.34	2
Condiments	kg		0.175		1.00		1.5		2
Nuts	kg	0.074	0.175	0.17	0.54	0.255	0.81	0.34	1.08
Product categories which are not covered by the PHPT but are covered in Scenarios 1 – 4:									
Dairy products	kg	0.074	0.175	0.17	0.54	0.255	0.81	0.34	1.08
Cereals and flakes (considered to be a part of <i>Prepacked sweetened products</i> category)	kg	0.074	0.175	0.17	0.54	0.255	0.81	0.34	1.08
Vegetables and beans containered, frozen pizza and dumplings, dinners containered (considered to be a part of <i>Ready-to-eat and instant foods</i>)	kg	0.074	0.175	0.17	0.54	0.255	0.81	0.34	1.08

Source: Section 3.3 based on Hungarian public health product tax (hung. magyar népegészségügyi termékadó). Available: https://nav.gov.hu/pfile/file?path=/ugyfeliranytu/nezzen-utana/inf_fuz/2023/53.-informacios-fuzet---nepegeszsegugyi-termekado

Notes:

Latvian case (Scenario 1): a two-tier tax system is applied to all other food categories (one-tier system for condiments just like in the PHPT applied in Hungary).

- Soft drinks:
 - Low rate is applied to soft drinks containing less than 8 g of sugar per 100 ml;
 - High rate is applied to soft drinks containing more than 8 g of sugar per 100 ml.
- Energy drinks:
 - High rate is applied to all energy drinks

- Other products: sugar and salt quantity limits for each tier are assumed the same as in the PHPT.
- Hungarian case (Scenario 2, 3 and 4): a two-tier tax system is applied to all other food categories (one-tier system for condiments). Sugar and salt quantity limits for each tier are as follows (see Section 3.3 for more details):
- Soft drinks:
 - Low rate is applied to soft drinks containing less than 8 g of sugar per 100 ml and no other sweetener, or containing no added sugar but containing sweetener.
 - High rate is applied to soft drinks containing more than 8 g of sugar per 100 ml, or containing both added sugar and sweetener
 - Energy drinks
 - Low rate is applied to drinks containing taurine, ginseng, larginine or a combination thereof of more than 10 mg per 100 ml. The sugar content of the energy drink is irrelevant.
 - High rate is applied to drinks containing methylxanthine and methylxanthine content exceeds 15 mg per 100 ml (and cannot be classified in the previous group). The sugar content of the energy drink is irrelevant.
 - Prepacked sweetened products
 - Low rate is applied to products containing sweetener, but no added sugar or containing no sweetener and its sugar content does not exceed 25 g per 100 g. Low rate is also applied to products containing less than 40 g of cocoa per 100 g of product and (i) no sweetener, but containing added sugar, with a sugar content not exceeding 40 g per 100 g, or (ii) containing sweetener (no added sugar).
 - High rate is applied if sugar content exceeds 25 g per 100 g, or also contains sweetener. High rate is also applied to products containing less than 40 g cacao per 100 g of product and more than 40 g sugar per 100 g of product or containing sweetener.
 - Sweetened cocoa powder
 - Low rate is applied to product containing less than 40 g of cocoa per 100 g, and no more than 40 g of sugar per 100 g.
 - High rate is applied to product containing less than 40 g of cocoa and sugar content exceeds 40 g per 100 g.
 - Snacks
 - Low rate is applied to snacks with the salt content no more than 1 g / 100 g of product and which (i) contain added sugar and has a maximum sugar content 25 g / 100 g of product; (ii) do not contain added sugar, only sweetener, (iii) do not contain added sugar or sweeteners.
 - High rate is applied to salty snacks with salt content exceeding 1 g/100 g of product), or its saturated fatty acid content exceeds 2 g/100 g of product. This category includes snacks - made using grains, potatoes, vegetables or oilseeds, - baked, extruded, toasted, puffed or roasted, - product suitable for immediate consumption.
 - Condiments
 - High rate is applied if salt content exceeds 5 g per 100 g of product.
 - Nuts
 - Low rate is applied if product contains sweetener, but no added sugar or contains added sugar, but no sweetener and a product containing no more than 15 g of sugar per 100 g.
 - High rate is applied if product contains added sugar and has a sugar content of more than 15 g per 100 g or contains added sugar and sweetener.

4.2. Price elasticity of demand

In this section we present the estimations of the relationship between sales volume and prices for all types of soft drinks subject to excise tax in Latvia⁵⁴ and selected food products rich in sugar and salt which are covered by the categories listed in section 4.1 and therefore could be considered to be taxable by *the broad-based sugar and salt tax*. In our analysis we use monthly data on prices and sales volume in modern trade retail market⁵⁵ in 2019 – 2023 in each of the Baltic countries. Modern trade retail market includes supermarkets, hypermarkets, and large-format stores. Data is obtained from AC Nielsen.

In case of soft drinks we estimate regressions where sales of regular CSDs, light (no- and low-calorie) CSDs, flavoured water, kvass, ice tea and energy drinks in month t - ($Q_t^{regular\ CSD}$, $Q_t^{light\ CSD}$, $Q_t^{flavoured}$, Q_t^{kvass} , $Q_t^{ice\ tea}$, $Q_t^{energy\ drinks}$, $Q_t^{sport\ and\ vitamin\ drinks}$, respectively), measured in litres, are explained by the following factors:

- The respective per litre weighted average retail prices in month t : $P_t^{regular\ CSD}$, $P_t^{light\ CSD}$, $P_t^{flavoured}$, P_t^{kvass} , $P_t^{ice\ tea}$, $P_t^{energy\ drinks}$, $P_t^{sport\ and\ vitamin\ drinks}$;
- Income, approximated by real GDP index in month t (Y_t). Data on GDP is available only by quarters; therefore, quarterly series were interpolated to monthly frequency using weighed average of monthly real industrial output and monthly real retail trade turnover;
- Per litre prices of other soft drinks in month t assuming that different types of soft drinks can be substitutes (in some model specifications);
- The sales volume of respective soft drink in previous month or months (e.g., in month $t-1$);
- Average monthly temperature in the country⁵⁶ (in some model specifications);

⁵⁴ According to the Law on Excise Duties, in Latvia the excise tax is applied to water and mineral water with added sugar, other sweeteners or flavouring, and other non-alcoholic beverages. The exceptions are fruit and vegetable juice and nectar, beverages which contain at least 10 per cent of juice (except for fruit juices made of concentrate), not more than 10 per cent of added sugar and which do not contain food additives and flavourings, natural water and mineral water, without added sugar, other sweetener or flavouring.

In what follows we consider regular and light (no- and low-calorie) CSDs, flavoured water, kvass, ice tea and energy drinks as excisable beverages, but all types of juice (including still juice drinks; in Latvia according to our observations still juice drinks mostly contain more than 10 per cent of juice) and unflavoured water are considered as exempted from excise tax

⁵⁵ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, to perform an analysis whose results can be compared across countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

⁵⁶ Source: Average monthly air temperature in Lithuania: <https://www.meteo.lt/2019-m-sausio-men-apzvalga/>
Average monthly air temperature in Latvia: Official statistics. GPL010m. Weather in Latvia by selected cities and towns 2004M01 – 2024M06. https://data.stat.gov.lv/pxweb/en/OSP_PUB/START_ENV_GP_GPL/GPL010m/
Data on average monthly air temperature in Estonia is received by request from Estonian Environment Agency <https://www.ilmateenistus.ee/>

- To account for seasonality, in the model we include intercept dummies for expected seasonal peak and off-peak months for the respective type of soft drinks;
- We additionally include time trends or year dummies (in some model specifications).

Similar regression specifications have also been estimated for selected food products. We present estimations of price elasticities of demand in Sections 4.2.1 (for soft drinks and energy drinks), 4.2.2 (for selected sugar sweetened food products) and 4.2.3 (for selected salt-rich food products).

4.2.1. Soft and energy drinks

According to our estimations, the demand for most soft drinks is price inelastic implying a smaller than proportional reduction in sales due to a price change: light (no- and low-calorie) CSDs, regular CSDs (except Lithuania), flavoured water, ice tea, sport and vitamin drinks (except Latvia) and energy drinks. This can partly be justified by the fact that in 2022–2023 Baltic countries experienced high levels of inflation, that made demand on average less price elastic in 2019–2024 than one could expect. On the contrary, in the analysis of price elasticities of demand for soft drinks Pluta et al. (2020) used time series for the period when the inflation rates were low (e.g., for CSDs the analysed period was 2014–2019) and found that the demand for the following soft drinks – regular CSDs, flavoured water, kvass and ice tea is price elastic in all Baltic countries, that means that an increase in price leads to a more than the proportional reduction in quantity sold. In contrast, the demand for light (no- and low-calorie) CSDs and energy drinks was found to be price inelastic.

The literature generally concludes that demand for soft drinks is responsive to price changes of soft drinks (see also Section 3.2). Briggs et al. (2013) estimated the price elasticity of sugar-sweetened beverages in UK to be between -0.81 and -0.92. Powell et al. (2013) provides a systematic review of 10 studies based on US data and reports the mean price elasticity of demand for sugar-sweetened beverages equal to -1.21. Colchero et al. (2015) provides consistent findings for price elasticities in US equal to -1.06 for soft drinks and -1.16 for all sugar-sweetened beverages. Cabrera Escobar et al. (2013) include 9 studies⁵⁷ in their meta-analysis and report price elasticity of demand in the US, Mexico, Brazil and France. These studies show negative price elasticity of demand for sugar-sweetened beverages ranging from -0.85 to -2.21 with the pooled price elasticity estimate equal to -1.3.

Table 4.2: The estimated price elasticities of demand for selected non-alcoholic beverages

	Latvia	Lithuania	Estonia
CSDs			
Regular	-0.697*** (-5.13)	-1.010*** (-4.56)	-0.587** (-2.17)
Light/diet (no- and low-calorie)	-0.180** (-2.21)	-0.474** (-2.18)	-0.177 (-0.47)
Flavoured water	-0.797** (-2.31)	-0.407 (-1.65)	-0.731** (-2.02)
Ice tea	-0.684***	-0.631***	-0.569*

⁵⁷ Published from 2000 to 2013.

	Latvia	Lithuania	Estonia
	(-3.71)	(-2.78)	(-1.76)
Kvass	-1.708** (-2.07)	-1.004** (-2.66)	-1.258* (-1.89)
Energy and natural energy drinks	-0.562** (-2.27)	-0.602** (-2.16)	-0.546 (-1.04)
Sport drinks and vitamin drinks	-1.948*** (-3.67)	-0.625*** (-2.69)	-0.027 (-0.95)

Source: authors' estimations using monthly data on prices and sales volume in modern trade retail market⁵⁸ in each of the Baltic countries obtained from AC Nielsen.

Note: Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, pval in parantheses.

4.2.2. Sugar-rich food products

Prepackaged sweetened products

According to our estimations, the demand for most prepackaged sweetened products is price inelastic implying a smaller than proportional reduction in sales due to a price change (see Table 4.3 for the estimated price elasticities of demand for selected prepackaged sweetened products). It applies to the following products: unpacked chocolate assortments (with the estimations of elasticities in the Baltic countries ranging from -0.4 to -1.0), chocolate bars (from -0.5 to -1.0), chocolate small bites (from -0.2 to -0.5), nut butter (from -0.8 to -0.9, in case of Latvia and Lithuania), hard candies (from -0.1 to -0.7), pastilles (from -0.1 to -0.2), sweet biscuits and wafers (from -0.6 to -0.7), chewing gum (-0.2), cacao (from -0.5 to -0.8), breakfast cereals (from -0.1 to -0.2) and unpopped popcorn (from -0.5 to -0.9 in case of Latvia and Lithuania). It should be noted that for many products the price elasticity is in the range between -0.5 and -0.9, which, however, can be considered as high responsiveness to the price changes. The demand for flakes is unitary or close to unitary in the Baltic countries implying an equal percentage change in demand due to a price change.

The demand for the following products – chocolate assortments (from -0.9 to -1.1), chocolate tablets (from -1.0 to -1.9), chocolate spread (from -1.1 to -1.2, in case of Lithuania and Estonia) soft candies (from -1.0 to -1.4, in case of Lithuania and Estonia), soft biscuit cake bars (from -1.2 to -1.6), desserts and pudding powder (from -1.3 to -2.3, in case of Latvia and Lithuania) is price elastic, which means that an increase in price leads to a more than the proportional reduction in quantity sold.

Dairy products

Among sweetened dairy products are both price elastic and inelastic. According to our estimations, the demand for chilled milk snacks is price elastic in all Baltic countries (with the estimations of elasticities ranging from -1.2 to -1.3), while the demand for ice cream, milk and quark desserts,

⁵⁸ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, to perform an analysis whose results can be compared across countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

curd countlines is price elastic only in Latvia (with values of -1.3 for ice cream, -1.0 for milk and quark desserts and curd countlines). The demand for condensed milk is price elastic only in Estonia (-1.3). Yoghurt and probiotics are the only dairy products whose demand in price inelastic in all three Baltic countries (from -0.2 to -0.8). Table 4.4 presents the estimated price elasticities of demand for selected dairy products.

Table 4.3: The estimated price elasticities of demand for selected prepackaged sweetened products

	Latvia	Lithuania	Estonia
Chocolate assortments	-1.116*** (-3.96)	-1.141** (-2.45)	-0.865** (-2.03)
Chocolate assortments unpacked	-0.776* (-1.75)	-0.353 (-1.10)	-0.995*** (-4.58)
Chocolate bars	-0.533*** (-3.16)	-0.895*** (-4.09)	-0.976*** (-3.94)
Chocolate small bites	-0.545*** (-3.07)	-0.156 (-0.86)	-0.522*** (-2.37)
Chocolate tablets	-1.860*** (-5.69)	-1.391*** (-4.77)	-1.047*** (-2.79)
Chocolate spread	-0.602* (-1.85)	-1.004*** (-5.51)	-1.215*** (-5.37)
Nut butter	-0.835*** (-3.62)	-0.861*** (-3.30)	-1.351*** (-4.93)
Hard candies	-0.548** (-2.13)	-0.718*** (-3.78)	-0.132** (-2.2)
Soft candies	-0.734*** (-4.00)	-1.400*** (-3.81)	-1.024*** (-3.42)
Pastilles	-0.160 (-1.54)	-0.126 (-1.23)	-0.052 (-0.61)
Sweet biscuits and wafers	-0.635*** (-3.14)	-0.686*** (-2.76)	-0.674*** (-3.17)
Soft biscuit cake bars	-1.333*** (-4.93)	-1.641*** (-7.93)	-1.169*** (-5.31)
Chewing gum	-0.226 (-1.080)	-0.154 (-0.60)	-0.218 (-1.04)
Desserts and pudding powder	-1.322*** (-3.97)	-2.327*** (-6.22)	-0.822*** (-3.17)
Cacao	-0.777*** (-4.66)	-0.554*** (-3.58)	-0.549** (-2.30)
Breakfast cereals	-0.200*** (-2.40)	-0.088*** (-2.60)	-0.089 (-0.42)
Flakes	-0.996*** (-6.61)	-1.024*** (-6.77)	-0.863*** (-4.32)
Popcorn unpopped	-0.913** (-2.56)	-0.457* (-1.89)	-1.676*** (-3.52)

Source: authors' estimations using monthly data on prices and sales volume in modern trade retail market⁵⁹ in each of the Baltic countries obtained from AC Nielsen.

⁵⁹ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, to perform an analysis whose results can be compared across

Note: Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, pval in parantheses.

Table 4.4: The estimated price elasticities of demand for selected dairy products

	Latvia	Lithuania	Estonia
Ice cream	-1.255** (-1.97)	-0.118 (-0.86)	-0.310 (-0.64)
Chilled milk snacks	-1.299*** (-2.92)	-1.246*** (-4.80)	-1.207*** (-3.08)
Yoghurt & probiotics	-0.786*** (-5.42)	-0.411*** (-3.58)	-0.181*** (-3.62)
Condensed milk	-0.761*** (-3.67)	-0.894*** (-2.89)	-1.342*** (-7.98)
Curd countlines	-1.022*** (-6.15)	-0.558*** (-3.79)	-0.271 (-1.43)
Milk and quark desserts	-1.014*** (-4.10)	-0.144*** (-2.25)	-0.600** (-2.34)

Source: authors' estimations using monthly data on prices and sales volume in modern trade retail market⁶⁰ in each of the Baltic countries obtained from AC Nielsen.

Note: Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, pval in parantheses.

4.2.3. Salt rich food

Salted snacks

According to our estimations, salted snacks are price inelastic. The estimations of demand elasticities are ranging from -0.1 to -0.3 for salted biscuits, sticks and pretzels and from -0.3 to -0.4 for salted snacks). The only exception is the price elastic demand for salted nuts in Latvia (- 1.1). Table 4.5 presents the estimated price elasticities of demand for selected types of salted snacks.

Condiments

In Estonia, demand for several types of condiments is found to be price elastic, namely, demand for dehydrated sauces (with the estimation value of -1.3), dehydrated seasonings (-1.3) and food decorations (-1.6). In Latvia, demand for dehydrated sauces (-1.2) is also found to be price elastic. For some types of condiments, the demand elasticity is unitary, implying an equal percentage change in demand due to a price change: dressings in all three Baltic countries and food decorations in Latvia and Lithuania. Table 4.6 presents the estimated price elasticities of demand for selected types of salted snacks.

countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

⁶⁰ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, to perform an analysis whose results can be compared across countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

Ready-to-eat and instant foods

Demand for containered vegetables and beans is found to be the most price elastic among other types of ready-to-eat and instant food types (with estimation values of elasticity ranging from -1.1 to -2.2). Demand for containered dinners is unitary in Latvia and Estonia, and price inelastic in Lithuania but still showing the high responsiveness to price changes (-0.6). Even though the demand for frozen pizza and dumplings is price inelastic (except demand for pizza in Estonia), we found high responsiveness of demand to price changes (from -0.6 to -0.7 for pizza in Latvia and Lithuania; from -0.6 to -0.7 for dumplings in the Baltic countries).

Table 4.5: The estimated price elasticities of demand for selected salted snacks

	Latvia	Lithuania	Estonia
Salted biscuits, sticks and pretzels	-0.119* (-1.91)	-0.349 (-1.44)	-0.348 (-1.43)
Salted nuts	-1.125*** (-4.97)	0.206 (1.10)	-0.555** (-2.27)
Salted snacks	-0.412*** (-3.45)	-0.330*** (-3.53)	-0.275*** (-2.77)

Source: authors' estimations using monthly data on prices and sales volume in modern trade retail market⁶¹ in each of the Baltic countries obtained from AC Nielsen.

Note: Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, pval in parantheses.

Table 4.6: The estimated price elasticities of demand for selected types of condiments

	Latvia	Lithuania	Estonia
Dehydrated instant and cooking culinary	-0.612*** (-7.05)	-0.546*** (-4.81)	-0.335*** (-2.84)
Dehydrates sauces	-1.218*** (-4.01)	-0.441* (-1.69)	-1.295*** (-3.80)
Dehydrated seasonings	-0.580*** (-3.12)	-0.874*** (-3.60)	-1.294*** (-9.32)
Dressings	-0.989*** (-5.26)	-1.001*** (-6.69)	-0.970*** (-6.05)
Food decorations	-1.007*** (-4.90)	-1.003*** (-4.13)	-1.608*** (-10.72)
Ketchup, tomato paste and sauces	-0.592*** (-4.35)	-0.218* (-1.95)	-0.318*** (-2.65)
Mayonnaise	-0.212*** (-3.51)	-0.593** (-2.25)	-0.237** (-2.28)

Source: authors' estimations using monthly data on prices and sales volume in modern trade retail market⁶² in each of the Baltic countries obtained from AC Nielsen.

⁶¹ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, to perform an analysis whose results can be compared across countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

⁶² Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, in order to perform an analysis whose results can be compared across countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

Note: Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, pval in parantheses.

Table 4.7: The estimated price elasticities of demand for selected types of ready-to-eat and instant foods

	LV	LT	EE
Pizza cooled and frozen	-0.646*** (-5.27)	-0.711*** (-4.89)	-1.149*** (-5.36)
Dumplings frozen	-0.659*** (-4.32)	-0.623*** (-3.05)	-0.675*** (-4.71)
Vegetables containered (total sum of baked beans, vegetables containered and vegetables in liquid)	-1.340*** (-4.26)	-1.756*** (-5.41)	-1.504*** (-4.57)
Vegetables containered	-1.125*** (-3.90)	-2.212*** (-5.92)	-1.244*** (-4.25)
Baked beans	-1.247*** (-5.56)	-1.461*** (-6.97)	-1.115*** (-5.23)
Vegetables in preserving liquid	-2.078*** (-6.84)	-1.163*** (-3.81)	-1.831*** (-5.20)
Dinners containered	-1.054*** (-7.08)	-0.640*** (-3.97)	-1.054*** (-4.01)

Source: authors' estimations using monthly data on prices and sales volume in modern trade retail market⁶³ in each of the Baltic countries obtained from AC Nielsen.

Note: Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, pval in parantheses.

4.3. Short-term or direct impact and state budget implication

4.3.1. Soft and energy drinks

In the next step, we simulate the increase of excise duty on soft drinks in Latvia (increase of a high rate from EUR 14 to EUR 17.5 per 100 litres) and introduction of the excise duty in Lithuania and Estonia). We estimate the magnitude of the sales decline and the fiscal effect from such policy.

We do not simulate higher rates of excise duty to apply on non-alcoholic beverages because the tax burden is already very high compared to other EU-27 countries: **in 2024 in Latvia the total PPP-adjusted amount of indirect taxes was the 3rd highest in the EU (PPP\$ 0.40 or 22.2% of the retail price)** (See Section 2.4 for more details).

Latvia is the only country among the Baltic countries applying the excise duty on soft drinks with added sugar, other sweetener, or flavouring. Therefore, we use Latvian data on weighted average retail prices (WAP) for each type of soft drinks to empirically estimate the degree of tax pass-through to consumers. Our results suggest that the tax pass-through to consumers varies by type of soft drinks and from one episode of the tax increase to another, but generally exceeds 50%. Our empirical strategy is as follows. We estimate a regression where soft drink price is a function of its

⁶³ Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops). Full retail trade data (which includes both modern retail trade sector and traditional retail trade sector) for Estonia is not collected and therefore not available. Therefore, to perform an analysis whose results can be compared across countries we use Modern trade retail data. Moreover, not all categories of goods of our interest are audited in the Full trade index.

own lagged values and the output gap which is included as a proxy for consumer demand. Then we use the estimated regressions to predict monthly prices for each type of soft drink and any price dynamics that cannot be explained by the model is interpreted as the impact of the tax increase. In our following estimations of the budgetary effect, we make two alternative assumptions about the same degree of pass-on for all types of soft drinks: (i) we assume tax pass-through rate of 100%, implying that sellers adjust retail prices by the amount of the tax increase; (ii) we assume that 50% of a tax hike is passed on to consumers.

We analyse 4 alternative scenarios of the budgetary effect for each Baltic country:

- (1) Based on the price-quantity relationship for each type of soft drinks estimated on the Latvian, Estonian and Lithuanian data, and tax pass-through rate of 100%;
- (2) Based on the price-quantity relationship for each type of soft drinks estimated on the Latvian, Estonian and Lithuanian data, and tax pass-through rate of 50%;
- (3) Based on the average price-quantity relationship across the Baltic countries for each type of soft drinks and tax pass-through rate of 100%;
- (4) Based on the average price-quantity relationship across the Baltic countries for each type of soft drinks and tax pass-through rate of 50%;

To estimate the short-term or direct impact of excise tax increase, we assume the following scenario of excise tax reform: the excise duty on regular CSDs and energy drinks (except light (no- and low-calorie) CSDs, ice tea, kvass, sport drinks and vitamin drinks and flavoured water) is increased from EUR 14 to EUR 17.5 per 100 litres, which is equivalent to a 25% increase in excise duty for Latvia. That is how much the tax rate has been raised to soft drinks with a sugar content above 8 g per 100 ml in March 2024 in Latvia. Light (no- and low-calorie) CSDs, ice tea, kvass, sport drinks and vitamin drinks and flavoured water remain to be subject to tax rate of EUR 7.4 per 100 litres, because, according to our observations, the sugar content in these beverages usually does not exceed 8 g per 100 ml.

We do not intentionally simulate the impact of higher rates, because already at these rates, which are in force in Latvia as of March 2024, the total PPP-adjusted amount of indirect taxes was the 3rd highest (PPP\$ 0.40 or 22.2% of the retail price) (see Section 2.4 for more details).

Table 0.5 in Annex 2 presents the estimated short-term or direct impact and state budget implication for each type of soft drinks in each Baltic country. Note that our results represent a short-term or direct fiscal effect, so that we do not account for any second-round effects that can arise from changes in domestic production, employment, and therefore other tax revenues.

Summing up the estimations for all drinks, in case of a 100% tax pass-through, such a reform could lead to a 1.8% increase in soft drink prices in Latvia (considering only soft drinks subject to excise duty), 15.2% and 10.8% in Lithuania and Estonia respectively⁶⁴. The price increase in Estonia is smaller than in Lithuania because prices for soft drinks in Estonia are higher and therefore the

⁶⁴ The price increase in Estonia and Lithuania is higher than in Latvia, because for these countries we simulate a new tax on soft drinks, while for Latvia we simulate an increase in the existing tax.

excise duty accounts for a smaller part of the price. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The expected fall in sales is calculated based on the estimated price elasticity of demand for each type of soft drink and on the average price elasticity of demand for each type of soft drink across the Baltic countries. The largest fall in sales of soft drinks subject to excise duty (11.2–13.3% in case of tax pass-through rate of 100% and 5.6–6.7% in case of tax pass-through rate of 50%) would take place in Lithuania since the price increase would be the highest. In Estonia, sales of soft drinks would fall by 6.7–7.7% in case of tax pass-through rate of 100% and by 3.3–3.9% in case of 50% tax pass-on to consumers. In Latvia, where excise duty has already been applied for more than two decades, sales volumes of soft drinks would decrease the least compared to other Baltic countries: by 1.2–1.3% in case of tax pass-through rate of 100% and by 0.6–0.7% in case of tax pass-through rate of 50%.

The introduction of excise tax on soft drinks is expected to generate EUR 17.9–19.9 mln in Lithuania and EUR 9.5–10.0 mln in Estonia annually. In Latvia the increase in the revenue from excise duties is estimated in the amount of EUR 1.5 mln.

Another short-run (partial equilibrium) effect of the tax that we do not explicitly account for in our analysis is that some people employed in the soft drinks production industry would have their wages reduced and / or they would lose their jobs. In case of Latvia, the tax increase would potentially affect at least 40 firms operating in soft drinks production industry (number of firms as of 2022) industry with around 922 employees and overall annual turnover close to EUR 100 mln⁶⁵.

Table 4.8: Short-term or direct effect of the excise tax increase on the sales decline of the soft drinks and the fiscal effect in the Baltic countries

	Latvia		Lithuania		Estonia	
Tax pass-through rate	1	0.5	1	0.5	1	0.5
Change in prices of soft drinks subject to excise tax, %	1.8	0.9	15.2	7.6	10.8	5.4
Change in sales of soft drinks subject to excise tax, %	-1.3 – -1.2	-0.7 – -0.6	-13.3 – -11.2	-6.7 – -5.6	-7.7 – -6.7	-3.9 – -3.3
Potential revenues from excise tax, mln EUR	1.5	1.5	17.9 – 18.6	19.6 – 19.9	9.5 – 9.6	9.9 – 10
Potential revenues from VAT, mln EUR	0.08 – 0.10	0.04 – 0.05	-0.09 – 0.67	0.13 – 0.47	0.48 – 0.76	0.29 – 0.42

Note: before tax increase prices refer to weighted average retail price in Jan–Feb 2024.

Source: authors' calculations using data on prices and sales volume of soft drinks obtained from AC Nielsen.

⁶⁵ Central Statistical Bureau of Latvia. SBG010. Key business indicators of enterprises. NACE C1107 Manufacture of soft drinks; production of mineral waters and other bottled waters

4.3.2. Sugar-rich food products

Next, we simulate the introduction of excise duty on prepackaged sweetened products and dairy products in the Baltic countries. We estimate the magnitude of the sales decline and the fiscal effect from such policy.

We analyse 4 alternative scenarios of the budgetary effect for each Baltic country:

- (1) Based on the price-quantity relationship for each type of product estimated on the Latvian, Estonian and Lithuanian data, and tax pass-through rate of 100%;
- (2) Based on the price-quantity relationship for each type of product estimated on the Latvian, Estonian and Lithuanian data, and tax pass-through rate of 50%;
- (3) Based on the average price-quantity relationship across the Baltic countries for each type of product and tax pass-through rate of 100%;
- (4) Based on the average price-quantity relationship across the Baltic countries for each type of product and tax pass-through rate of 50%;

To estimate the short-term or direct impact of excise tax increase, we assume four scenarios of excise tax reform (see Section 4.1 for more details on the tax rates in each of four scenarios).

As prepackaged sweetened products we consider the following food categories: breakfast cereals, flakes, cacao, chewing gum, chocolate assortments, chocolate assortments unpacked, chocolate bars, chocolate small bites, chocolate tablets, hard candies, pastilles, soft candies, sweet biscuits and wafers, popcorn unpopped, soft biscuit cake bars, desserts and pudding powder, chocolate spread, nut butter.

As sweetened dairy products we consider the following food categories: ice cream, chilled milk snacks, yoghurt and probiotics, condensed milk, curd countlines, milk and quark desserts.

Tables 4.8 and 4.9 present the summarized estimated short-term or direct impact and state budget implication for prepackaged sweetened products and dairy products in each Baltic country. Note that our results represent a short-term or direct fiscal effect, so that we do not account for any second-round effects that can arise from changes in domestic production, employment, and therefore other tax revenues.

Scenario 1 foresees that the low and high rates, applied to food products, are equal to the low and high rates applied to non-alcoholic beverages in Latvia as of March 2024, namely the low rate is EUR 7.40 per 100 kg if the salt or sugar amount in the food product is considered by legislation to be low and EUR 17.5 if the salt or sugar content is considered by legislation to be high.

Summing up the estimations for all **prepackaged sweetened products** (see Table 4.8), in scenario 1, in case of a 100% tax pass-through, such a reform could lead to a 1.1–2.3% increase in prices of prepackaged sweetened products in Latvia (considering only products subject to excise duty), 1.2–2.5% and 1.2–2.3% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries is of similar magnitude (0.9–1.8% in Latvia, 0.9– 1.9% in Lithuania and Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%).

The introduction of excise tax on prepacked food products is expected to generate EUR 1.4 – 2.7 mln in Latvia, EUR 2.7 – 5.4 mln in Lithuania, EUR 1.7 – 3.4 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is very small but positive.

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. In case of a 100% tax pass-through, such a reform could lead to a 2.6–6.8% increase in prices of prepackaged sweetened products in Latvia (considering only products subject to excise duty), 2.8–7.3% and 2.7–7.0% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries is of similar magnitude (2.0–5.4% in Latvia, 2.1– 5.7% in Lithuania, 2.0–5.5% in Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%).

In scenario 2, the introduction of excise tax on prepacked food products is expected to generate EUR 3.1 – 3.7 mln in Latvia, EUR 6.1 – 15.4 mln in Lithuania, EUR 3.8 – 9.7 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is very small but positive.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, the change in price and change in sales, as well as potential revenues from excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is very small but positive.

Table 4.8: Application of excise tax on prepackaged sweetened products in the Baltic countries: short-term or direct effect on the sales decline and the fiscal effect

LATVIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	1.1 – 2.3	0.6 – 1.1	2.6 – 6.8	1.3 – 3.4	3.9 – 10.2	1.9 – 5.1	5.2 – 13.6	2.6 – 6.8
Change in sales, %	-1.8 – -0.9	-0.9 – -0.4	-5.4 – -2.0	-2.7 – -1.0	-8.1 – -3.0	-4.1 – -1.5	-10.8 – -4.0	-5.4 – -2.0
Potential revenues from excise tax, mln EUR	1.4 – 2.7	1.4 – 2.7	3.1 – 7.7	3.1 – 8.0	4.5 – 11.2	4.6 – 11.8	6.0 – 14.5	6.1 – 15.5
Potential revenues from VAT, mln EUR	0.06 – 0.12	0.03 – 0.06	0.12 – 0.31	0.06 – 0.18	0.17 – 0.39	0.9 – 0.25	0.22 – 0.44	0.12 – 0.31
LITHUANIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	1.2 – 2.5	0.6 – 1.2	2.8 – 7.3	1.4 – 3.7	4.2 – 11.0	2.1 – 5.5	5.6 – 14.6	2.8 – 7.4
Change in sales, %	-1.9 – -0.9	-1.0 – -0.5	-5.7 – -2.1	-2.9 – -1.1	-8.6 – -3.2	-4.3 – -1.6	-11.5 – -4.2	-5.7 – -2.1

Potential revenues from excise tax, mln EUR	2.7 – 5.4	2.7 – 5.5	6.1 – 15.4	6.2 – 15.9	9.0 – 22.3	9.2 – 23.5	11.9 – 28.7	12.2 – 30.8
Potential revenues from VAT, mln EUR	0.12 – 0.25	0.06 – 0.13	0.25 – 0.61	0.13 – 0.35	0.35 – 0.77	0.19 – 0.49	0.44 – 0.84	0.25 – 0.61
ESTONIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	1.2 – 2.3	0.6 – 1.2	2.7 – 7.0	1.3 – 3.5	4.0 – 10.5	2.0 – 5.2	5.3 – 14.0	2.7 – 7.0
Change in sales, %	-1.9 – -0.9	-0.9 – -0.4	-5.5 – -2.0	-2.8 – -1.0	-8.3 – -3.0	-4.1 – -1.5	-11.1 – -4.0	-5.5 – -2.0
Potential revenues from excise tax, mln EUR	1.7 – 3.4	1.7 – 3.4	3.8 – 9.7	3.9 – 10.0	5.7 – 14.0	5.8 – 14.7	7.5 – 18.1	7.6 – 19.3
Potential revenues from VAT, mln EUR	0.08 – 0.19	0.04 – 0.10	0.18 – 0.49	0.09 – 0.27	0.26 – 0.64	0.14 – 0.39	0.32 – 0.74	0.18 – 0.49

Note: before tax increase prices refer to weighted average retail price in Jan–April 2024.

As prepackaged sweetened products we consider the following food categories: breakfast cereals, flakes, cacao, chewing gum, chocolate assortments, chocolate assortments unpacked, chocolate bars, chocolate small bites, chocolate tablets, hard candies, pastilles, soft candies, sweet biscuits and wafers, popcorn unpopped, soft biscuit cake bars, desserts and pudding powder, chocolate spread, nut butter.

Source: authors' calculations using data on prices and sales volume of prepackaged sweetened products obtained from AC Nielsen.

Summing up the estimations for all **sweetened dairy products** (see Table 4.9), in scenario 1, in case of a 100% tax pass-through, such a reform could lead to a 2.0–4.1% increase in prices of sweetened dairy products in Latvia (considering only products subject to excise duty), 1.9–3.9% and 2.0–4.0% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries is of similar magnitude (1.0–3.8% in Latvia, 0.6–2.0% in Lithuania 0.6–2.1% and Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%).

The introduction of excise tax on sweetened dairy products is expected to generate EUR 1.9–3.8 mln in Latvia, EUR 3.4 – 6.8 mln in Lithuania, EUR 2.2 – 4.5 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is very small but positive.

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. In case of a 100% tax pass-through, such a reform could lead to a 4.6 – 12.2% increase in prices of sweetened dairy products in Latvia (considering only products subject to excise duty), 4.4 – 11.6% and 4.5 – 11.9% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries is of similar magnitude (2.4 – 11.4% in Latvia, 1.4% – 6.1% in Lithuania, 1.3 – 6.1% in Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%).

In scenario 2, the introduction of excise tax on prepacked food products is expected to generate EUR 4.2 – 10.8 mln in Latvia, EUR 7.7 – 19.8 mln in Lithuania, EUR 5.0 – 13.1 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is very small but positive.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, the change in price and change in sales, as well as potential revenues from excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is either positive or negative but small.

Table 4.9: Application of excise tax on sweetened dairy products in the Baltic countries: short-term or direct effect on the sales decline and the fiscal effect

LATVIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	2.0 – 4.1	1.0 – 2.0	4.6 – 12.2	2.3 – 6.1	7.0 – 18.3	3.5 – 9.2	9.3 – 24.4	4.6 – 12.2
Change in sales, %	-3.8 – -1.0	-1.9 – -0.5	-11.4 – -2.4	-5.7 – -1.2	-17.1 – -3.6	-8.6 – 1.8	-22.8 – -4.8	-11.4 – -2.4
Potential revenues from excise tax, mln EUR	1.9 – 3.8	1.9 – 3.8	4.2 – 10.8	4.3 – 11.2	6.2 – 15.6	6.4 – 16.5	8.1 – 19.9	8.4 – 21.6
Potential revenues from VAT, mln EUR	-0.03 – 0.36	-0.01 – 0.18	-0.28 – 0.96	-0.07 – 0.52	-0.62 – 1.33	-0.15 – 0.75	-1.11 – 1.62	-0.28 – 0.96

LITHUANIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	1.9 – 3.9	1.0 – 1.9	4.4 – 11.6	2.2 – 5.8	6.6 – 17.3	3.3 – 8.7	8.8 – 23.1	4.4 – 11.6
Change in sales, %	-2.0 – -0.6	-1.0 – -0.3	-6.1 – -1.4	-3.0 – -0.7	-9.1 – -2.2	-4.6 – -1.1	-12.1 – -2.9	-6.1 – -1.4
Potential revenues from excise tax, mln EUR	3.4 – 6.8	3.4 – 6.9	7.7 – 19.8	7.8 – 20.3	11.4 – 29.1	11.6 – 30.0	15.0 – 37.9	15.4 – 39.6
Potential revenues from VAT, mln EUR	0.32 – 0.98	0.16 – 0.49	0.71 – 2.81	0.36 – 1.44	1.04 – 4.09	0.54 – 2.14	1.34 – 5.29	0.71 – 2.81
ESTONIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	2.0 – 4.0	1.0 – 2.0	4.5 – 11.9	2.3 – 5.9	6.8 – 17.8	3.4 – 8.9	9.0 – 23.8	4.5 – 11.9
Change in sales, %	-2.1 – -0.6	-1.0 – -0.3	-6.1 – -1.3	-3.1 – -0.6	-9.2 – 1.9	-4.6 – 1.0	-12.3 – -2.5	-6.1 – -1.3
Potential revenues from excise tax, mln EUR	2.2 – 4.5	2.2 – 4.5	5.0 – 13.1	5.1 – 13.3	7.5 – 19.2	7.6 – 19.8	9.8 – 25.1	10.1 – 26.1
Potential revenues from VAT, mln EUR	0.22 – 0.67	0.11 – 0.34	0.49 – 1.94	0.25 – 0.99	0.72 – 2.83	0.38 – 1.47	0.94 – 3.68	0.49 – 1.94

Note: before tax increase prices refer to weighted average retail price in Jan – April 2024.

As sweetened dairy products we consider the following food categories: ice cream, chilled milk snacks, yoghurt and probiotics, condensed milk, curd countlines, milk and quark desserts.

Source: authors' calculations using data on prices and sales volume of dairy products obtained from AC Nielsen.

4.3.3. Salt-rich food products

Next, we simulate the introduction of excise duty on prepackaged products high in salt in the Baltic countries. We estimate the magnitude of the sales decline and the fiscal effect from such policy.

We analyse 4 alternative scenarios of the budgetary effect for each Baltic country:

- (1) Based on the price-quantity relationship for each type of product estimated on the Latvian, Estonian and Lithuanian data, and tax pass-through rate of 100%;
- (2) Based on the price-quantity relationship for each type of product estimated on the Latvian, Estonian and Lithuanian data, and tax pass-through rate of 50%;
- (3) Based on the average price-quantity relationship across the Baltic countries for each type of product and tax pass-through rate of 100%;
- (4) Based on the average price-quantity relationship across the Baltic countries for each type of product and tax pass-through rate of 50%;

To estimate the short-term or direct impact of excise tax increase, we assume four scenarios of excise tax reform (see Section 4.1 for more details on the tax rates in each of four scenarios).

As salted snacks we consider the following food categories: salty snacks themselves, salted nuts, salted biscuits, sticks and pretzels.

As ready-to-eat and instant food we consider the following food categories: pizza cooled and frozen, dumplings frozen, vegetables and beans containered, dinners containered.

As condiments we consider the following food categories: dehydrated instant and cooking culinary, dehydrated sauces, dehydrated seasonings, dressings, food decorations, ketchup, tomato paste and sauces, mayonnaise.

Summing up the estimations for all **salted snacks** (see Table 4.10), in scenario 1, in case of a 100% tax pass-through, such a reform could lead to a 0.7 – 1.5% increase in prices of salted snacks in Latvia (considering only products subject to excise duty), 0.8 – 1.6% and 0.7 – 1.4% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries is of similar magnitude (0.3 – 0.7% in Latvia, 0.2 – 0.6% in Lithuania 0.2 – 0.5% and Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%).

The introduction of excise tax on salted snacks is expected to generate EUR 0.4–0.8 mln in Latvia, EUR 0.8 – 1.6 mln in Lithuania, EUR 0.4 – 0.7 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is very small but positive.

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. In case of a 100% tax pass-through, such a reform could lead to a 1.6 – 7.2% increase in prices of salted snacks in Latvia (considering only products subject to excise duty), 1.8 – 7.7% and 1.6 – 6.6% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries is of similar magnitude (0.6 –3.1% in Latvia, 0.4% – 2.7% in Lithuania, 0.5 – 2.3% in Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%).

In scenario 2, the introduction of excise tax on salted snacks is expected to generate EUR 0.9 – 3.7 mln in Latvia, EUR 1.8 – 7.4 mln in Lithuania, EUR 0.8 – 3.6 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is very small but positive.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, the change in price and change in sales, as well as potential revenues from excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is positive and mostly small.

Table 4.10: Application of excise tax on salted snacks in the Baltic countries: short-term or direct effect on the sales decline and the fiscal effect

LATVIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	0.7 – 1.5	0.4 – 0.7	1.6 – 7.2	0.8 – 3.6	2.5 – 10.8	1.2 – 5.4	3.3 – 14.4	1.6 – 7.2
Change in sales, %	-0.7 – -0.3	-0.4 – -0.1	-3.1 – -0.6	-1.6 – -0.3	-4.7 – -0.9	-2.4 – -0.4	-6.3 – -1.2	-3.1 – -0.6
Potential revenues from excise tax, mln EUR	0.4 – 0.8	0.4 – 0.8	0.9 – 3.7	0.9 – 3.7	1.3 – 5.4	1.3 – 5.6	1.7 – 7.1	1.7 – 7.3
Potential revenues from VAT, mln EUR	0.04 – 0.10	0.02 – 0.05	0.09 – 0.50	0.05 – 0.26	0.14 – 0.74	0.07 – 0.38	0.18 – 0.96	0.09 – 0.50
LITHUANIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	0.8 – 1.6	0.4 – 0.8	1.8 – 7.7	0.9 – 3.9	2.8 – 11.6	1.4 – 5.8	3.7 – 15.5	1.8 – 7.7
Change in sales, %	-0.6 – -0.2	-0.3 – -0.1	-2.7 – -0.4	-1.4 – -0.2	-4.1 – -0.6	-2.0 – -0.3	-5.5 – -0.8	-2.7 – -0.4
Potential revenues from excise tax, mln EUR	0.8 – 1.6	0.8 – 1.6	1.8 – 7.4	1.8 – 7.5	2.6 – 10.9	2.7 – 11.2	3.5 – 14.4	3.5 – 14.8
Potential revenues from VAT, mln EUR	0.10 – 0.25	0.05 – 0.13	0.24 – 1.13	0.12 – 0.57	0.35 – 1.67	0.18 – 0.85	0.47 – 2.19	0.24 – 1.13
ESTONIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	0.7 – 1.4	0.3 – 0.7	1.6 – 6.6	0.8 – 3.3	2.3 – 10.0	1.2 – 5.0	3.1 – 13.3	1.6 – 6.6
Change in sales, %	-0.5 – -0.2	-0.2 – -0.1	-2.3 – -0.5	-1.1	-3.4 – -0.8	-1.7 – -0.4	-4.5 – -1.1	-2.3 – -0.5
Potential revenues from excise tax, mln EUR	0.4 – 0.7	0.4 – 0.7	0.8 – 3.6	0.8 – 3.6	1.3 – 5.3	1.3 – 5.4	1.7 – 7.0	1.7 – 7.2
Potential revenues from VAT, mln EUR	0.05 – 0.11	0.03 – 0.05	0.12 – 0.53	0.06 – 0.27	0.18 – 0.79	0.09 – 0.40	0.24 – 1.04	0.12 – 0.53

Note: before tax increase prices refer to weighted average retail price in Jan–April 2024.

As salted snacks we consider the following food categories: salty snacks themselves, salted nuts, salted biscuits, sticks and pretzels.

Source: authors' calculations using data on prices and sales volume of salted snacks obtained from AC Nielsen.

Summing up the estimations for **ready-to-eat and instant foods** (see Table 4.11), in scenario 1, in case of a 100% tax pass-through, such a reform could lead to a 2.6 – 5.2% increase in prices of ready-to-eat and instant foods in Latvia (considering only products subject to excise duty), 2.8 – 5.6% and 2.0 – 4.0% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries equals to 3.0 – 6.8% in Latvia, 3.7 – 8.3% in Lithuania and 2.4– 4.9% and Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%.

The introduction of excise tax on ready-to-eat and instant foods is expected to generate EUR 0.9 – 1.8 mln in Latvia, EUR 1.7 – 3.3 mln in Lithuania, EUR 1.0 – 1.9 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is either positive or negative and mostly small.

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. In case of a 100% tax pass-through, such a reform could lead to a 5.9 – 27.4% increase in prices of ready-to-eat and instant foods in Latvia (considering only products subject to excise duty), 6.4 – 29.8% and 4.6 – 21.3% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries equals to 6.9 –36.1% in Latvia, 8.5% – 44.1% in Lithuania, 5.4 – 26.0% in Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%.

In scenario 2, the introduction of excise tax on salted snacks is expected to generate EUR 2.1– 6.3 mln in Latvia, EUR 3.7 – 10.0 mln in Lithuania, EUR 2.1 – 7.4 mln in Estonia (in case of tax pass-through rate of 100% and slightly higher amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is either positive or negative and mostly small.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, the change in price and change in sales, as well as potential revenues from excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is either positive or negative and mostly small.

Table 4.11: Application of excise tax on ready-to-eat and instant foods in the Baltic countries: short-term or direct effect on the sales decline and the fiscal effect

LATVIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	2.6 – 5.2	1.3 – 2.6	5.9 – 27.4	2.9 – 13.7	8.8 – 41.2	4.4 – 20.6	11.8 – 54.9	5.9 – 27.4
Change in sales, %	-6.8 – -3.0	-3.4 – -1.5	-36.1 – -6.9	-18.0 – -3.5	-54.1 – -10.4	-27.1 – -5.2	-60.5 – -13.9	-36.1 – -6.9
Potential revenues from excise tax, mln EUR	0.9 – 1.8	1 – 1.9	2.1 – 6.3	2.1 – 8.4	3.0 – 6.5	3.2 – 11.0	3.8 – 5.8	4.1 – 12.7

Potential revenues from VAT, mln EUR	-0.12 – -0.03	-0.05 – -0.01	-1.29 – -0.09	-0.45 – -0.03	-2.52 – -0.15	-0.82 – -0.06	-2.86 – -0.24	-1.29 – -0.09
LITHUANIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	2.8 – 5.6	1.4 – 2.8	6.4 – 29.8	3.2 – 14.9	9.6 – 44.7	4.8 – 22.3	12.8 – 59.6	6.4 – 29.8
Change in sales, %	-8.3 – -3.7	-4.2 – -1.9	-44.1 – -8.5	-22.0 – -4.3	-57.6 – -12.8	-33.1 – -6.4	-61.3 – -17.1	-44.1 – -8.5
Potential revenues from excise tax, mln EUR	1.7 – 3.3	1.8 – 3.5	3.7 – 10.0	3.9 – 14.6	5.3 – 9.2	5.7 – 18.5	6.7 – 11.1	7.5 – 20.0
Potential revenues from VAT, mln EUR	-0.32 – -0.10	-0.14 – -0.05	-3.14 – -0.28	-1.13 – -0.12	-4.69 – -0.47	-2.02 – -0.20	-4.80 – -0.71	-3.14 – -0.28
ESTONIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %	2.0 – 4.0	1.0 – 2.0	4.6 – 21.3	2.3 – 10.6	6.9 – 31.9	3.4 – 16.0	9.1 – 42.6	4.6 – 21.3
Change in sales, %	-4.9 – -2.4	-2.5 – -1.2	-26.0 – -5.4	-13.0 – -2.7	-39.0 – -8.1	-19.5 – -4.1	-51.5 – -10.8	-26.0 – -5.4
Potential revenues from excise tax, mln EUR	1 – 1.9	1 – 2.0	2.1 – 7.4	2.2 – 9.0	3.1 – 8.6	3.3 – 12.3	4.0 – 8.6	4.3 – 14.7
Potential revenues from VAT, mln EUR	-0.09 – -0.03	-0.04 – -0.01	-0.99 – -0.08	-0.34 – -0.03	-1.93 – -0.14	-0.63 – -0.06	-3.13 – -0.22	-0.99 – -0.08

Note: before tax increase prices refer to weighted average retail price in Jan – April 2024.

As ready-to-eat and instant food we consider the following food categories: pizza cooled and frozen, dumplings frozen, vegetables and beans containered, dinners containered.

Source: authors' calculations using data on prices and sales volume of ready-to-eat and instant food obtained from AC Nielsen.

Summing up the estimations for **condiments** (see Table 4.12), in scenario 1, in case of a 100% tax pass-through, such a reform could lead to a 1.7 – 3.5% increase in prices of condiments in Latvia (considering only products subject to excise duty), 1.8 – 3.7% and 1.6 – 3.3% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries is of similar magnitude (0.7 – 1.6% in Latvia, 0.8 – 1.6% in Lithuania and 0.6 – 1.5% and Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%).

The introduction of excise tax on condiments is expected to generate EUR 0.7 – 1.5 mln in Latvia, EUR 1.3 – 2.6 mln in Lithuania, EUR 1.3 – 1.4 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive and small.

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. In case of a 100% tax pass-through, such a reform could lead to a 17.4% increase in prices of condiments in Latvia (considering only products subject to excise duty), 18.6% and 16.3% in Lithuania and Estonia respectively. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The estimated fall in sales in the Baltic countries equals to 7.4–7.9% in Latvia, 8.0–8.4% in Lithuania, 6.3–7.5% in Estonia in case of tax pass-through rate of 100% and about twice as small in case of tax pass-through rate of 50%.

In scenario 2, the introduction of excise tax on salted snacks is expected to generate EUR 6.8 mln in Latvia, EUR 12.0 mln in Lithuania, EUR 6.2 – 6.3 mln in Estonia (in case of tax pass-through rate of 100% and slightly higher amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive and mostly small.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, the change in price and change in sales, as well as potential revenues from excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is positive and mostly small.

Table 4.12: Application of excise tax on condiments in the Baltic countries: short-term or direct effect on the sales decline and the fiscal effect

LATVIA		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate		1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %		1.7 – 3.5	0.9 – 1.7	17.4	8.7	26.0	13.0	34.7	17.4
Change in sales, %		-1.6 – -0.7	-0.8 – -0.4	-7.9 – -7.4	-3.9 – -3.7	-11.8 – -11.0	-5.9 – -5.5	-15.7 – -14.7	-7.9 – -7.4
Potential revenues from excise tax, mln EUR		0.7 – 1.5	0.7 – 1.5	6.8	7.1 – 7.2	9.5 – 9.6	10.4 – 10.5	11.9 – 12.1	13.5 – 13.6
Potential revenues from VAT, mln EUR		0.08 – 0.16	0.04 – 0.08	0.67 – 0.70	0.37 – 0.38	0.91 – 0.96	0.53 – 0.55	1.10 – 1.17	0.67 – 0.70
LITHUANIA		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate		1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %		1.8 – 3.7	0.9 – 1.9	18.6	9.3	28.0	14.0	37.3	18.6
Change in sales, %		-1.6 – -0.8	-0.8 – -0.4	-8.4 – -8.0	-4.2 – -4.0	-12.6 – -12.1	-6.3 – -6.0	-16.8 – -16.1	-8.4 – -8.0
Potential revenues from excise tax, mln EUR		1.3 – 2.6	1.3 – 2.7	12.0	12.7	16.8 – 17.0	18.5 – 18.6	20.9 – 21.2	23.9 – 24.1
Potential revenues from VAT, mln EUR		0.13 – 0.28	0.07 – 0.14	1.10 – 1.21	0.61 – 0.66	1.47 – 1.65	0.87 – 0.95	1.73 – 1.97	1.10 – 1.21
ESTONIA		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate		1	0.5	1	0.5	1	0.5	1	0.5
Change in prices, %		1.6 – 3.3	0.8 – 1.6	16.3	8.2	24.5	12.2	32.6	16.3
Change in sales, %		-1.5 – -0.6	-0.7 – -0.3	-7.5 – -6.3	-3.8 – -3.2	-11.3 – -9.5	-5.6 – -4.7	-15.0 – -12.6	-7.5 – -6.3
Potential revenues from excise tax, mln EUR		1.3 – 1.4	1.3 – 1.4	6.2 – 6.3	6.6	8.8 – 9.1	9.6 – 9.7	11.1 – 11.5	12.4 – 12.7
Potential revenues from VAT, mln EUR		0.07 – 0.16	0.04 – 0.08	0.61 – 0.72	0.33 – 0.38	0.83 – 1.00	0.48 – 0.83	0.99 – 1.24	0.61 – 0.72

Note: before tax increase prices refer to weighted average retail price in Jan – April 2024.

As condiments we consider the following food categories: dehydrated instant and cooking culinary, dehydrated sauces, dehydrated seasonings, dressings, food decorations, ketchup, tomato paste and sauces, mayonnaise.

Source: authors' calculations using data on prices and sales volume of condiments obtained from AC Nielsen.

According to our estimations, in scenario 1, **application of excise tax on food products high in sugar and salt** (see Table 4.13) is expected to generate EUR 5.3 – 10.6 mln in Latvia, EUR 9.9 – 19.7 mln in Lithuania, EUR 6.6 – 11.9 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive, below or close to EUR 1 mln).

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. The introduction of excise tax **on food products high in sugar and salt** is expected to generate EUR 10.2 – 34.9 mln in Latvia, EUR 19.3 – 64.0 mln in Lithuania, EUR 11.9 – 39.9 mln in Estonia (in case of tax pass-through rate of 100% and slightly higher amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive, below or close to EUR 3 mln.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, potential revenues from excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is mostly positive.

Table 4.13: Application of excise tax on food products high in sugar and salt in the Baltic countries: short-term or direct effect on the sales decline and the fiscal effect

LATVIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Potential revenues from excise tax, mln EUR	5.3 – 10.6	5.3 – 10.7	10.2 – 34.9	10.4 – 38.2	15.0 – 47.3	15.5 – 54.9	19.6 – 59.5	20.4 – 69.8
Potential revenues from VAT, mln EUR	0.14 – 0.62	0.07 – 0.32	0.09 – 1.19	0.07 – 0.89	-0.74 – 0.90	0.08 – 1.11	-1.73 – 1.33	0.09 – 1.19
LITHUANIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Potential revenues from excise tax, mln EUR	9.9 – 19.7	10.0 – 20.0	19.3 – 64.0	19.7 – 70.7	28.5 – 88.3	29.2 – 101.0	37.3 – 112.9	38.6 – 128.0
Potential revenues from VAT, mln EUR	0.57 – 1.41	0.29 – 0.74	0.92 – 2.51	0.49 – 1.86	1.27 – 3.54	0.71 – 2.33	1.55 – 5.56	0.92 – 2.51
ESTONIA	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Tax pass-through rate	1	0.5	1	0.5	1	0.5	1	0.5
Potential revenues from excise tax, mln EUR	6.6 – 11.9	6.6 – 12.0	11.9 – 39.9	12.0 – 42.5	17.5 – 56.0	17.9 – 61.8	23.0 – 69.7	23.7 – 79.8
Potential revenues from VAT, mln EUR	0.40 – 1.04	0.20 – 0.53	0.71 – 2.69	0.37 – 1.58	1.01 – 3.34	0.55 – 2.20	1.28 – 3.57	0.71 – 2.69

Source: authors' calculations using data on prices and sales volume of selected food products obtained from AC Nielsen.

Discussion and recommendations

Excessive consumption of unhealthy food and sugar-sweetened soft drinks contribute to weight gain, as well as obesity related and other noncommunicable diseases (NCDs)⁶⁶. Overweight and obesity rates in the Baltic countries are extremely high and are continue growing. The issue puts a considerable strain on health care and social resources and is a high priority on the policy agenda in Latvia. In early September 2024, the Ministry of Health of the Republic of Latvia drafted "The Action Plan for Reducing the Growth in the Prevalence of Overweight and Obesity for 2025–2029" and opened it for public discussion. Recognizing that the development of overweight and obesity has multifactorial causes, a comprehensive approach is required to effectively tackle this problem, involving experts from various fields and addressing the issue from multiple perspectives. Excise tax could be considered as one of the tools in a complex approach to discourage excessive consumption of foods and beverages high in sugar and salt, encourage a balanced diet and promote positive health outcomes.

WHO recommends less than 5 g per adult per day of salt intake. According to the WHO (2023a) estimate, in 2019 the salt intake in Latvia and Lithuania is much higher than recommended: 7.6 g/day salt and 7.4 g/day salt respectively. Among the Baltic countries, the salt intake in Estonia is the closest to the recommended one: 5.7 g/day salt. However, recent national studies conducted in Estonia and Latvia report higher salt consumption of Estonians and Latvians than the WHO (2023a).

Based on EFSA (EFSA Panel on Nutrition, Novel Foods and Food Alergens, 2022) data, **the major contributor to the intake of added sugars** in nearly all European countries **is sugar and confectionery**, ranging for adults aged 18–64 years from 20% in Austria to 57% in Italy (48% and 54% in Latvia and Estonia respectively). For children aged 1–18 years sugar and confectionary contribute to 36 – 44% of added sugar intake in Latvia and 38 – 49% of added sugar intake in Estonia.

In Latvia, sugar and confectionery are followed by **fine bakery waves** (25% for adults aged 18–64 years and 16 – 23% for children aged 1–18 years) and processed fruits and vegetables (9% for adults aged 18–64 years and 10 – 16% for children aged 1–18 years). A significant source of added sugar for toddlers is **dairy products** (21%). **In Latvia, the contribution of sweetened soft and fruit drinks to total added sugar intake is 8% for adults aged 18–64 years and 3–7% for children aged 1–18 years.**

In Estonia the major contributor – sugar and confectionery – is followed by processed fruits and vegetables excluding beverages (11% for adults aged 18–64 years and 7–14% for children aged 1–18 years) and dairy products (11% for adults aged 18–64 years and 11–22% for children aged

⁶⁶ Longitudinal and observational studies have found a link between the consumption of sugar-sweetened beverages (SSBs) and non-communicable diseases (NCDs) including obesity and diabetes (Bridge G. et.al., 2020). Bridge G, Lomazzi M, Bedi R. (2020). Implementation of a sugar-sweetened beverage tax in low- and middle-income countries: recommendations for policymakers. *J Public Health Policy*. 2020;41(1):84-97. doi:10.1057/s41271-019-00196-z

1–18 years, with a higher proportion for younger children). **In Estonia, the contribution of sweetened soft and fruit drinks ranges from 10% for adults aged 18–64 years to 17–21% for adolescents aged 10–14 years (the proportion is slightly lower for children in other age groups: 16% for children aged 14–18 years and 11–12% for children aged 1–9 years).**

Evidence from other countries shows that imposing excise duties on soft drinks with added sugar are effective in reducing consumption of these drinks, if the price changes caused by the tax are sufficiently large. At the same time, the evidence on effectiveness of taxes in reducing sugar intake is inconclusive. According to New Zealand Institute of Economic Research (NZIER, 2017), studies which use sound methods report a reduction in sugar intake that is likely to be too small to generate health benefits and that can easily be cancelled out by substitution with other caloric products. On the other hand, studies reporting a considerable change in sugar intake assume no compensatory substitution. Abundance of substitutes with not only high sugar levels but also fats creates a risk that any potential benefits from the tax are overturned, and makes it hard to evaluate the true effect on health outcomes.

Policymakers could consider a comprehensive policy approach to reducing overweight and obesity of population. **Excise taxation should not be the only tool to reduce consumption of excise products.** According to The McKinsey Global Institute (MGI, 2014), there is a need for comprehensive policy approach to reducing overweight and obesity. No single solution will be sufficient in the fight against obesity, and interventions should be used jointly within a comprehensive programme. In addition, the study concludes that **the most effective intervention to abate obesity is to switch to smaller packages (portion control) in retail and to reformulate the products in manufacturing**, while introduction of the tax is less effective and scored only 13th out of 16 intervention areas.

Introduction of an excise duty on soft drinks with added sugar, other sweeteners and flavouring in Latvia in 1999 was mostly motivated by the budgetary needs of the government. In 2022, the tax was differentiated based on sugar content, with a higher rate applied to beverages containing more than 8 g of sugar per 100 ml. Since 2022, the tax rate for beverages with higher sugar content was increased by 25% in March 2024 and will be increased again by 20% in January 2026. The increase of the excise duty on non-alcoholic beverages in 2024 is one of the compensatory measures for setting a reduced rate of VAT at the 12% for fresh fruits and vegetables until the end of 2024.

To our knowledge, there are no studies assessing the changes in sugar intake caused by the soft drinks tax considering possible substitution with other sugar-rich products. Thus, to address the problem of growing obesity via application of excise duties on soft drinks, it is extremely **important to carry out a public health study assessing the changes in sugar intake caused by the soft drinks tax taking into account possible substitution with other sugar-rich products.** The results of the study may justify the need to broaden the tax base to other sugar-rich products.

Experience in Hungary and Finland suggest that a sugar tax is effective in reducing calorie intake when imposed on a wide range of products, as opposed to a tax on a few products, which induces consumers' switching to other foods with added sugar, salt and fats. As of 2024, Hungary is the only country in Europe imposing a tax on non-alcoholic beverages and food products with a high

saturation of fats, salt and sugars (methylxanthine, taurine, ginseng, larginine in case of energy drinks). **Hungarian** public health product tax (PHPT) is recognized by WHO (2015c) as an example of successful intersectoral action using a fiscal tool to promote healthier food choices and raise revenues for public health, making it a key case study in using fiscal policies to improve public health outcomes. Beyond increasing prices, the tax raised awareness about unhealthy foods and shifted consumer behavior towards healthier choices. Successful implementation required cooperation across sectors, including public health experts, the Ministry of Health, the Ministry of Finance, and the WHO, to develop and refine the policy. The tax was refined multiple times after its initial implementation to address loopholes and ensure effectiveness, particularly against superficial recipe changes aimed at tax evasion. Since implementation of the PHPT, impact post-evaluation of tax impact was conducted at least 2 times. The assessments conducted a year and three years after implementations confirmed that the PHPT successfully met its public health objectives by reducing the consumption of taxed products. However, study of Berezvai et al. (2024) covering the period from 2010 to 2018, found that while the PHPT initially reduced the consumption of unhealthy foods, this effect diminished over time as disposable incomes grew.

International evidence shows that in response to the government decisions to introduce or increase the excise duty on soft drinks, many companies opt to reformulate their products by reducing sugar content in order to reduce the decline in sales. Reaching an agreement with manufacturers on a reduction of sugar, salt and saturated fat content in food products and non-alcoholic beverages is one of the ways how to achieve reduction in the consumption of certain products and promote healthy eating habits among the population. Importers and some domestic manufacturers of food products and non-alcoholic beverages may not be covered by the agreements reached between the government and manufacturers, and they also may not voluntarily commit to reducing sugar in their food products and non-alcoholic beverages and/or reducing portion sizes. Because of this, and considering, that a sugar tax is shown to be effective in reducing sugar and calorie intake when imposed on a wide range of products, **policymakers could consider introducing an excise duty on a broad range of sugar-rich and salt-rich food products and non-alcoholic beverages, while differentiating the duty rate according to sugar and salt content in a product. Policymakers could consider to apply a multitiered tax structures⁶⁷ (with more than two rates) based on the sugar and salt content and to provide a 100% relief for innovative products such as light (no- and low-calorie) soft drinks, water with natural flavouring, sugar-free or low-sugar snacks.** Differentiated tax rate would stimulate the industry to drive down sugar and salt content in their products, i.e., offering sugar and salt-reduced options. Application of excise taxes to wide range of sugar and salt-rich products may bring additional resources to the state budget.

⁶⁷ In November 2023, the need for a revision of the multitiered tax structure of non-alcoholic sugar-sweetened beverages has been discussed by the Nutrition Council (latv. Uztura padome) of the Ministry of Health of the Republic of Latvia. The Minister of Health H.Abu Meri stated that the sugar content limit which is set for the lowest tax rate could be gradually reduced to 4 g of sugar/100 ml, and 3 years later to 2 g/100 ml. This should gradually make consumers accustomed to drinks containing less sugar.

Source: The Ministry of Health (2023). Minutes of the meeting of the Nutrition Council of the Ministry of Health. 27.11.2023. Nr.24. Available: <https://www.vm.gov.lv/lv/media/13239/download?attachment>

By introducing a tax on non-alcoholic beverages and food products high in sugar and salt, policymakers could incentivize manufacturers and give them sufficient time to reduce sugar in their products that could lead to significant reductions in sugar consumption without negatively affecting sales. However, reformulation efforts are likely to vary across firms depending on production cost constraints, consumer attachment to beverage taste, competitive positions, and relationships with distributors and bottlers. There is a concern about the potential harm to local businesses. In 2022, the volume of non-alcoholic beverages produced domestically accounted for only one-seventh, or 15%, of the total volume of non-alcoholic beverages released for consumption in 2022 (Ministry of Agriculture, 2024). Considering this, it should be noted that the market is predominantly dominated by imported products. This means that locally licensed non-alcoholic beverage producers have to compete with imported products, whose manufacturers are much larger international companies that can adapt more flexibly to the requirements of different national markets. They do so by investing in the production of non-alcoholic beverages with a lower added sugar content or by replacing sugar with sweeteners in non-alcoholic beverages.

Compatibility with the EU State aid rules

The tax applied on food products high in sugar and salt should be compatible with EU State aid rules. According to the European Commission, any tax measure that favours certain undertakings or the production of certain goods over others, which are comparable (or contain just as much sugar), constitutes state aid (Confectionery News, 2016). Favouring some products over others through taxation is allowed only if it can be justified by reasons of general economic development. Thus, taxing standalone products with high sugar content like confectionery is not allowed.

Coordination of excise tax policies between the Baltic countries

When introducing the tax or raising the tax rates, it is important to anticipate changes in consumer behaviour. Evidence from Norway and Denmark shows that increase in excise duties, and, therefore, higher prices, increase the incentives for consumers to engage in cross-border shopping or to switch to cheaper substitutes. As a result, the increase in excise duty can lead to a smaller decrease in consumption than initially planned or might even increase consumption (stock piling of the product might lead to over-consumption) and can have no positive effect on health outcomes of the population. Therefore, any change in excise tax policy should be accompanied by excise tax policy coordination between bordering countries to minimize price differentials and therefore to prevent incentives for cross-border shopping. Excise tax policy coordination can lead to potential Pareto improvement that is mutually beneficial for all participating parties.

The optimal/required size of the tax rate increase

The excise duties can be increased in a gradual incremental manner or in one large hike. When the price increases are relatively small, consumers are gradually adjusting to prices, therefore such excise tax policy does not generate incentives for consumers to switch to untaxed substitutes. At the same time, small tax rate increases are less effective in changing consumers' behaviour (Caro J.C. et.al., 2018; Powell, L.M. et.al, 2013) and reducing overall consumption, while more effective in raising tax revenue. Hence, large price increases will lead to a larger reduction in consumption

and therefore better health outcomes. When setting rates, a balance must be struck between economic aspects and human health.

Considering the results of previous studies, we conclude that to influence consumer behavior, price increases should reach at least 10%. Policymakers could consider to adjust the tax rates over time as disposable incomes rise in the country.

Short-term and long-term impacts on employment

Tax increases that reduce the sales can result in significant job losses for those who manufacture, distribute and sell these products. However, the net impact of excise tax policies on national employment depends on the magnitude of both job losses in the taxed sector and job gains elsewhere in the economy as some consumers reallocate their spending to other goods and services and governments spend the additional tax revenues raised from tax increases or reduce income taxes that may ceteris paribus lead to larger labour supply. Furthermore, excise taxes on sugar-rich soft drinks and food products high in sugar and salt, by reducing consumption of taxed products, lead to a reduction of diseases related to obesity and other noncommunicable diseases (NCDs) and therefore to a decline in health care expenditures attributable to treatment of the respective diseases. Resources not spent on health care would be ultimately allocated to the consumption of other goods and services and create alternative jobs in other sectors of the economy. Important to note that decreased consumption of heavily taxed products could be at least partially offset by increased consumption of less taxed (relatively cheaper) or untaxed products, which are often produced by the same companies or start to be produced if companies opt to reformulate their products to minimise the decline in sales volume (Chaloupka F.J. u.c., 2019).

Study from the United States found that reduction in consumption of sugar-sweetened beverages due to higher taxes have either no effect or a net positive effect on overall employment (Powell L.M., 2014). It used a macroeconomic simulation model which accounts for changes in product demand, average state income, and substitution effects. This study concludes, that a 20% increase in sugar-sweetened beverage taxes in 2 states results in net change in employment close to zero, as declines in employment within the beverage industry were offset by new employment in other industries and government sectors.

Use of tax revenue

The use of revenue from an excise duty applied on a broad range of sugar-rich food products and non-alcoholic beverages could be transparent. Government could commit to allocate the tax revenue (or the fixed portion of revenue) to **enhance the health status of the population – to finance the specified initiatives**. Hungary could be as an example of good practice. In Hungary since August 2023, companies subject to PHPT can choose to earmark 10% of their tax to programmes promoting active lifestyles and daily physical activity in the country (European Observatory of Health Systems and Policies, 2024⁶⁸). This step aims to ensure that a part of the

⁶⁸European Observatory of Health Systems and Policies. The regulation of public health product tax has been amended to promote active lifestyles. Available:

<https://eurohealthobservatory.who.int/monitors/health-systems-monitor/updates/hspm/hungary-2011/the-regulation-of-public-health-product-tax-has-been-amended-to-promote-active->

tax revenue directly contributes to the promotion of healthy and active lifestyles in Hungary. As a result, the amount of tax revenue going to this initiative increased 7.2 times from August 2023 to March 2024. The Hungarian government has established a council composed of health and other professionals to ensure the effective use of the raised money. The council launched 15 programmes, including a trekking camp for disadvantaged children, school hiking programmes, a national weight loss programme, and a national programme to encourage GPs to prescribe exercise in addition to or instead of medication (European Observatory of Health Systems and Policies, 2024).

Raising awareness of the negative health outcomes caused by excessive sugar and salt intake

An important role in the reduction of sugar and salt consumption comes from higher awareness of negative health outcomes caused by excessive sugar and salt intake. Policymakers can consider different ways to draw consumers' attention to the sugar and salt content in food products and beverages. For example, products and beverages can be divided into 3 groups according to sugar and salt content - rich, medium and low content – and each group can be labelled in a uniform way. Research evidence indicates that interpretative labelling can encourage reformulation (WHO, 2017; Vyth E.L. et.al., 2010; Mhurchu C.N., 2017). At the same time, it is necessary to check that the packaging of all products and beverages contains information on the sugar and salt content and that the information provided by producers is correct and written in clear and easily readable text formats. Implementing front-of-pack labelling to help consumers select food products with lower sodium content. Easy-to-access information about the sugar and salt content would increase the incentives of companies for reformulation.

Short-term or direct impact and state budget implication of an introduction of the excise tax on food products high in sugar and salt

Motivated by the evidence of Hungary, we simulate the short-term impact of the introduction of the differentiated broad-based tax on food products high in sugar and salt using the approach applied in Pluta et. al (2020). First, we use monthly data on sales and prices of soft drinks and food products of selected categories in the modern trade retail market in 2019–2023 to estimate the price elasticity of demand in the Baltic countries. Modern trade retail market includes supermarkets, hypermarkets, and large-format stores. Data is obtained from AC Nielsen. Second, we simulate different scenarios to assess increase in price, reduction in sales and budgetary effect using the estimated elasticities and assuming different degrees of tax pass-through rate to retail prices. Note that our results represent a short-term or direct fiscal effect, so that we do not account for any second-round effects that can arise from changes in domestic production, employment and therefore other tax revenues.

Currently Hungary is the only country in Europe imposing the tax on the pre-packaged food products with a high saturation of fats, salt and sugars. This tax has been successfully applied since 2011 (see section 3.2 on the effectiveness of the PHPT). Therefore, defining the scenarios that are considered when modelling the introduction of the new tax in the Baltic countries, we use the

[lifestyles#:~:text=Since%201%20August%202023%2C%20companies,physical%20activity%20in%20the%20country.](#)

Hungarian PHPT as a good practice example. As a basis we use the list of product categories under taxation by the PHPT, two-tier tax system and the PHPT rates as of 2024 (see Section 3.3). In addition, we are also looking at other product categories (such as sugar sweetened dairy products, sweetened cereals and vegetables and beans contained), expanding the tax base even more.

In total we simulated one scenario for taxation of soft drinks and four scenarios for taxation of food products high in sugar and salt.

Scenario considered for soft drinks

We simulate the increase of excise duty on non-alcoholic beverages in Latvia (increase of a high rate from EUR 14 to EUR 17.5 per 100 litres). That is how much the tax rate has been raised for soft drinks with a sugar content above 8 g per 100 ml in March 2024 in Latvia. For Lithuania and Estonia, we simulate the introduction of the excise duty applying the low and high rates that are in force in Latvia as of March 2024. Then we estimate the magnitude of the sales decline and the fiscal effect from such policy.

We do not simulate higher rates of excise duty to apply to non-alcoholic beverages because the tax burden is already very high compared to other EU-27 countries: **in 2024 in Latvia the total PPP-adjusted amount of indirect taxes was the 3rd highest in the EU (PPP\$ 0.40 or 22.2% of the retail price).**

Scenarios considered for food products high in sugar and salt

Scenarios 1 – 4 consider a two-tier tax system for almost all food categories high in sugar and salt (except condiments for which only a high rate is applied due to the high salt content, similarly as in Hungary). Scenarios differ from each other in the applicable rates.

Scenario 1 foresees that the low and high rates, applied to food products, are equal to the low and high rates applied to non-alcoholic beverages in Latvia as of March 2024, namely the low rate is EUR 7.40 per 100 kg if the salt or sugar amount in the food product is considered as low and EUR 17.5 if the salt or sugar content is considered as high.

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024.

In providing **the lower bound of the interval**, we assume that 100% of sales of a particular product or drink are subject to the new tax, but the amount of sugar and salt is low and therefore a lower rate is applied.

In providing **the upper bound of the interval**, we assume that 25% of sales of a particular product or drink are subject to the new tax, but the amount of sugar and salt is low and therefore a lower rate is applied. The remaining 75% of the sales volume is subject to the new tax, but the amount of sugar and salt is high and therefore a higher rate is applied to them.

Results: soft drinks

Summing up the estimations for all soft drinks, in case of a 100% tax pass-through, such a reform could lead to a 1.8% increase in soft drink prices in Latvia (considering only soft drinks subject to excise duty), 15.2% and 10.8% in Lithuania and Estonia respectively⁶⁹. The price increase in Estonia is smaller than in Lithuania because prices for soft drinks in Estonia are higher and therefore the excise duty accounts for a smaller part of the price. In the case of a 50% tax pass-through, the growth of prices is 50% lower.

The largest fall in sales of soft drinks subject to excise duty (11.2–13.3% in case of tax pass-through rate of 100% and 5.6–6.7% in case of tax pass-through rate of 50%) would take place in Lithuania since the price increase would be the highest. In Estonia, sales of soft drinks would fall by 6.7–7.7% in case of tax pass-through rate of 100% and by 3.3–3.9% in case of 50% tax pass-through to consumers. In Latvia, where excise duty has already been applied for more than two decades, sales volumes of soft drinks would decrease the least compared to other Baltic countries – by 1.2–1.3% in case of tax pass-through rate of 100% and by 0.6–0.7% in case of tax pass-through rate of 50%

The introduction of excise tax on soft drinks is expected to generate EUR 17.9–19.9 mln in Lithuania and EUR 9.5 – 10.0 mln in Estonia annually. In Latvia the increase in the revenue from excise duties is estimated in the amount of EUR 1.5 mln.

Results: food products high in sugar and salt

According to our estimations, application of excise tax on food products high in sugar and salt could lead to price increase and sales decrease of taxed food products with magnitude depending on the type of food product (i.e., average retail price in the country) and scenario assumed (i.e., tax rates). The largest impact is expected for ready-to-eat and instant food and condiments. This is explained by the fact that we simulate “the high” rate applicable to them (not a two-tier system, as in Hungary).

In scenario 1, application of excise tax on food products high in sugar and salt is expected to generate EUR 5.3 – 10.6 mln in Latvia, EUR 9.9 – 19.7 mln in Lithuania, EUR 6.6 – 11.9 mln in Estonia (in case of tax pass-through rate of 100% and similar amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive, below or close to EUR 1 mln).

In scenario 2 the low and high rates applied to food products are equal to the PHPT rates as of 2024. The introduction of excise tax on food products high in sugar and salt is expected to generate EUR 10.2 – 34.9 mln in Latvia, EUR 19.3 – 64.0 mln in Lithuania, EUR 11.9 – 39.9 mln in Estonia (in case of tax pass-through rate of 100% and slightly higher amount in case of tax pass-through rate of 50%). The change in the revenue from VAT is positive, below or close to EUR 3 mln.

In scenario 3 the low and high rates applied to food products are 1.5 times higher than the PHPT rates as of 2024. And finally in scenario 4 the low and high rates applied to food products are 2 times higher than the PHPT rates as of 2024. In case of scenario 3 and 4, potential revenues from

⁶⁹ The price increase in Estonia and Lithuania is higher than in Latvia, because for these countries we simulate a new tax on soft drinks, while for Latvia we simulate an increase in the existing tax.

excise tax are roughly equal to the corresponding values in scenario 2, multiplied by a factor of 1.5 (in scenario 3) and 2 (in scenario 4). The change in the revenue from VAT is mostly positive, below or close to EUR 4 mln.

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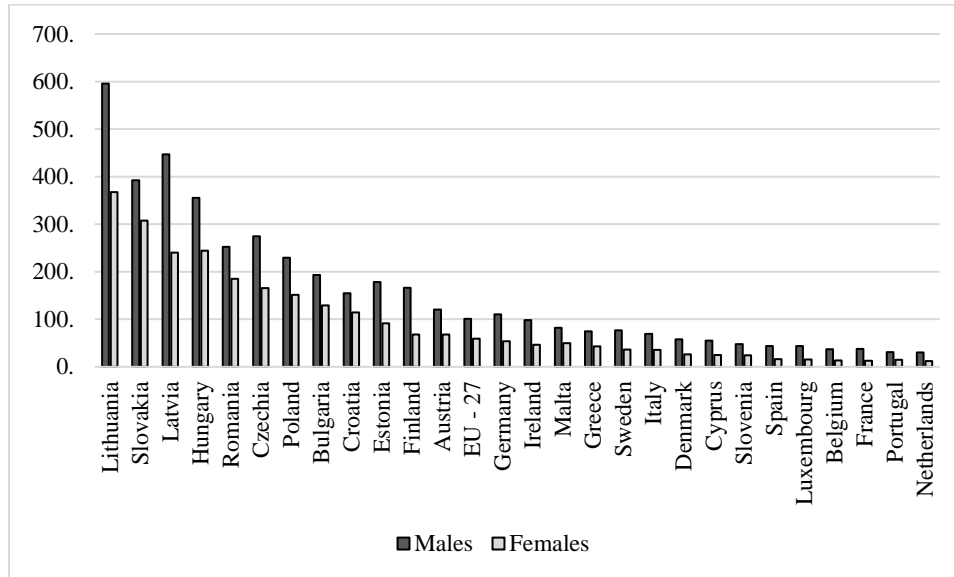
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Annex 1

Figure 0.1. Death from ischaemic heart diseases in the EU-27 countries in 2021, standardized death rate per 100 000 inhabitants

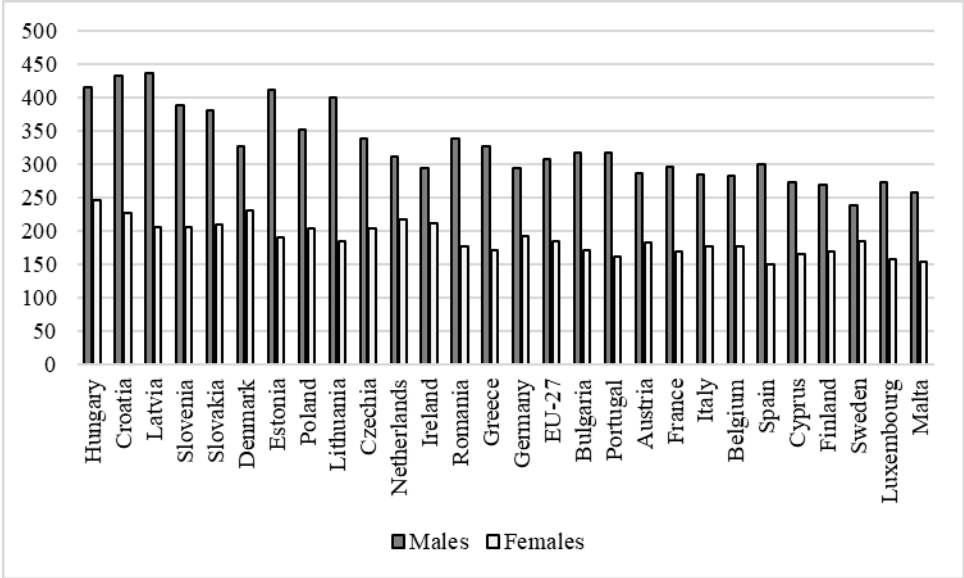


Source: Eurostat (tps00119)

Note: countries are ranked on the average of male and female.

Death rates are adjusted to a standard age distribution. The standard reference population used is the European standard population. The use of standardised death rates improves comparability over time and between countries. https://ec.europa.eu/eurostat/cache/metadata/en/hlth_cdeath_sims.htm

Figure 0.2. Death due to cancer in the EU-27 countries in 2021, standardized death rate per 100 000 inhabitants



Source: Eurostat, (tps00116)

Note: countries are ranked in descending order starting with the country with the highest total (males and females) standardized death rate due to cancer per 100 000 inhabitants. Death rates are adjusted to a standard age distribution. The standard reference population used is the European standard population. The use of standardised death rates improves comparability over time and between countries. https://ec.europa.eu/eurostat/cache/metadata/en/hlth_cdeath_sims.htm

Figure 0.3. Overweight rate by body mass index (BMI) in EU countries in 2022, % of population aged 18 or over

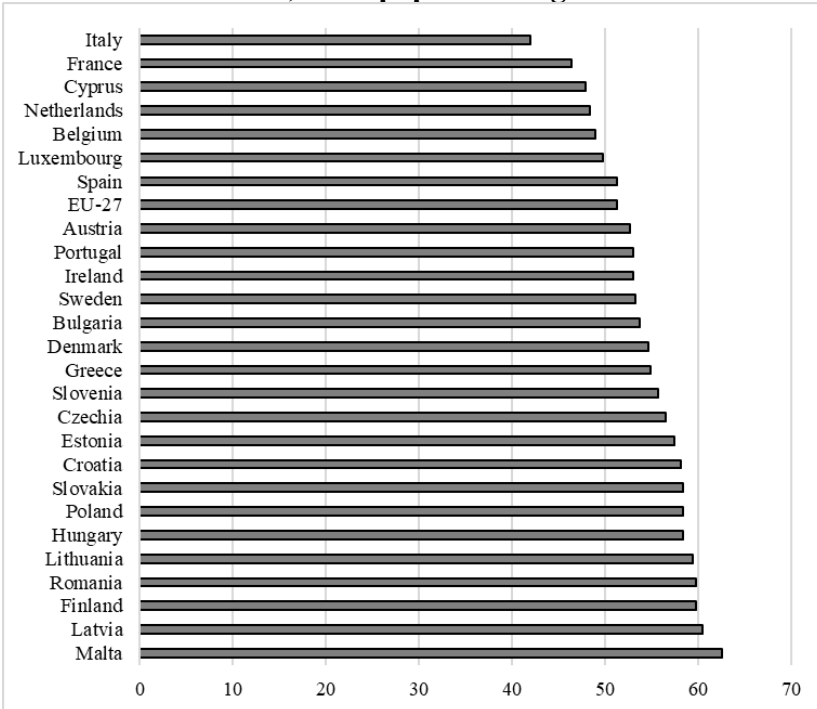
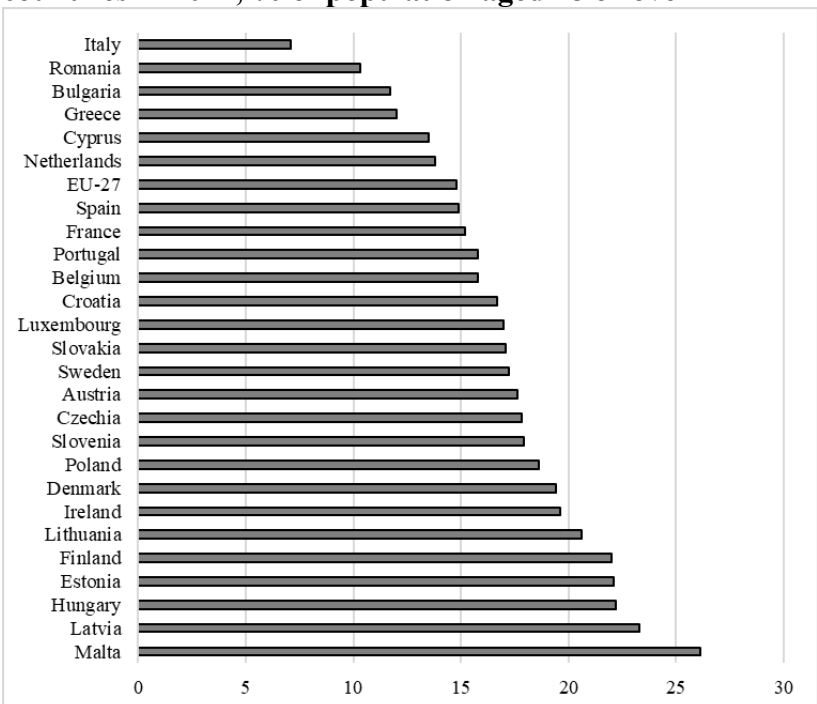


Figure 0.4. Obese rate by body mass index (BMI) in EU countries in 2022, % of population aged 18 or over



Source: Eurostat, online data code: *sdg_02_10* based on data collected via EU-SILC (Statistics on Income and Living Conditions) in ad-hoc module “*Health and children’s health*” in 2022.

Note: countries are ranked from the country with the smallest share of overweight (BMI equal or greater than 25 (Pre-obese + Obese)) population.

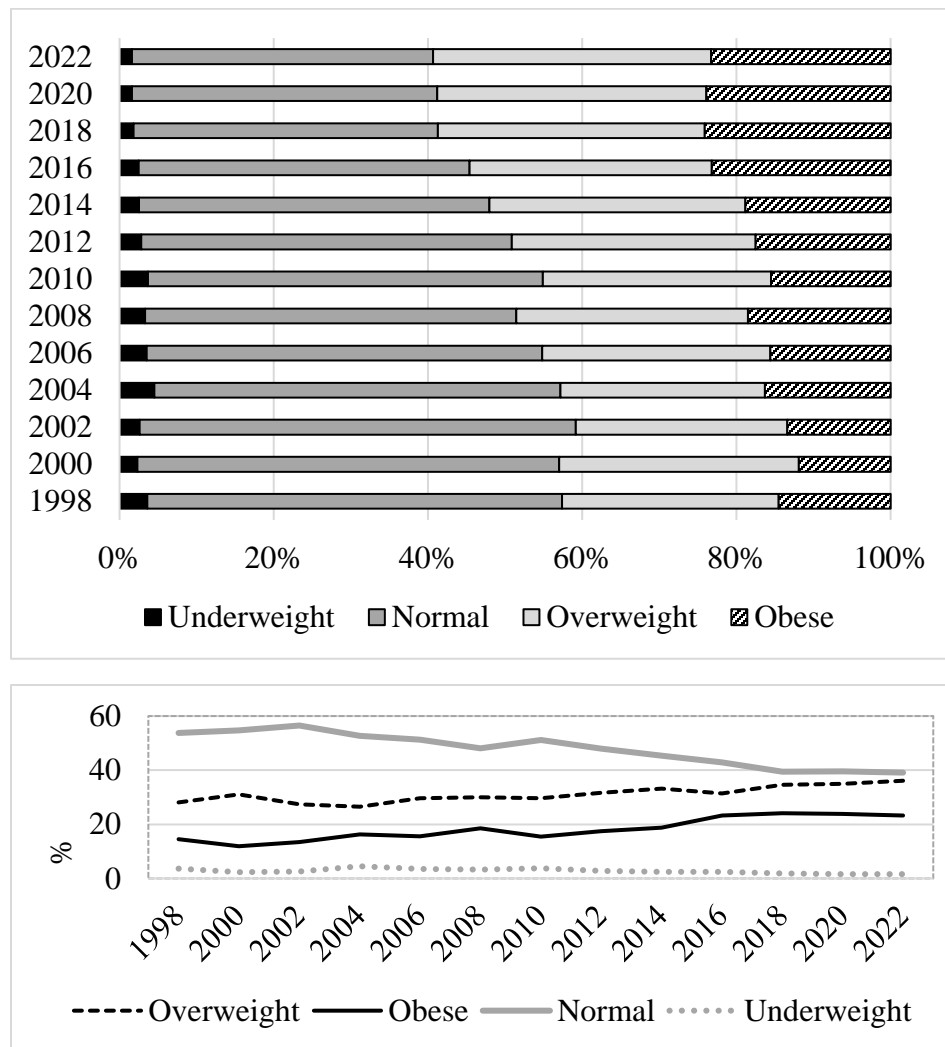
The indicator measures the share of obese people based on their body mass index (BMI). BMI is defined as the weight in kilos divided by the square of the height in meters.

People aged 18 years or over are considered obese with a BMI equal or greater than 30. Other categories are: underweight (BMI less than 18.5), normal weight (BMI between 18.5 and less than 25), and pre-obese (BMI between 25 and less than 30). The category overweight (BMI equal or greater than 25) combines the two categories pre-obese and obese.

Metadata: https://ec.europa.eu/eurostat/cache/metadata/en/sdg_02_10_esmsip2.htm

Data for Germany is not available for 2022.

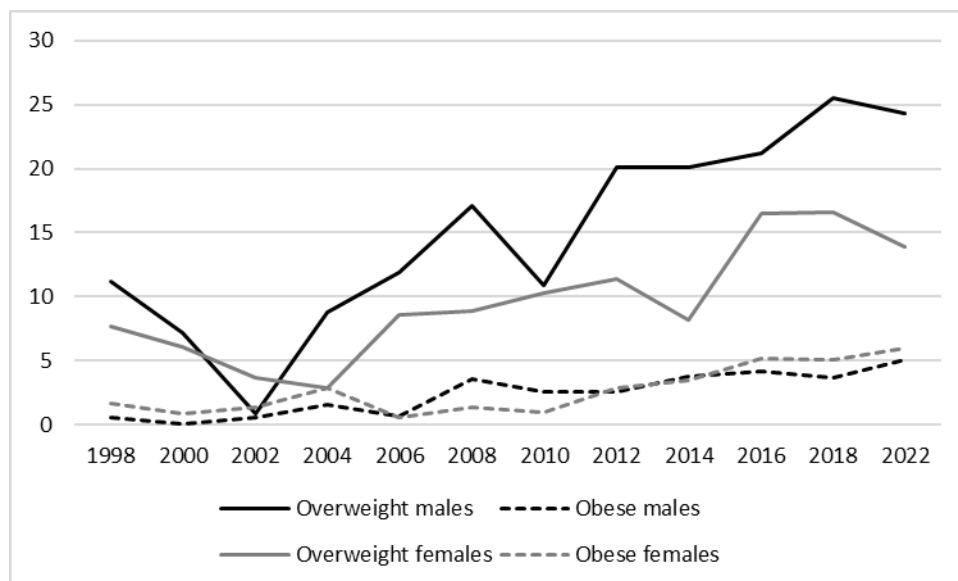
Figure 0.5: Body mass index in Latvia in 1998–2022, % of population (age group 16–64 in 1998; 15–64 in 2014, 15–74 in 2016–2022)



Source: Centre for disease prevention and control. Latvijas iedzīvotāju veselību ietekmējošo paradumu pētījums. (engl. - Health Behaviour among Latvian Adult Population). 13 reports in 1998–2022. Available: <https://www.spkc.gov.lv/lv/veselibu-ietekmejosu-paradumu-petijumi>

Note: People aged 18 years or over are considered obese with a BMI equal or greater than 30. Other categories are: underweight (BMI less than 18.5), normal weight (BMI between 18.5 and less than 25), and overweight (BMI between 25 and less than 30).

Figure 0.6: Prevalence of overweight and obese males and females aged 15–24 years (16 – 24 in 1998) in Latvia in 1998–2022, % of population aged 15–24 years



Source: Centre for disease prevention and control. Latvijas iedzīvotāju veselību ietekmējošo paradumu pētījums. (engl. - Health Behaviour among Latvian Adult Population). 13 reports in 1998–2022. Available: <https://www.spkc.gov.lv/lv/veselibu-ietekmejosu-paradumu-petijumi>

Note: People aged 18 years or over are considered obese with a BMI equal or greater than 30, overweight with a BMI 25–30.

Figure 0.7: Structure of per capita sales of soft drinks in the modern trade retail market in the Baltic countries, in 2023, litres

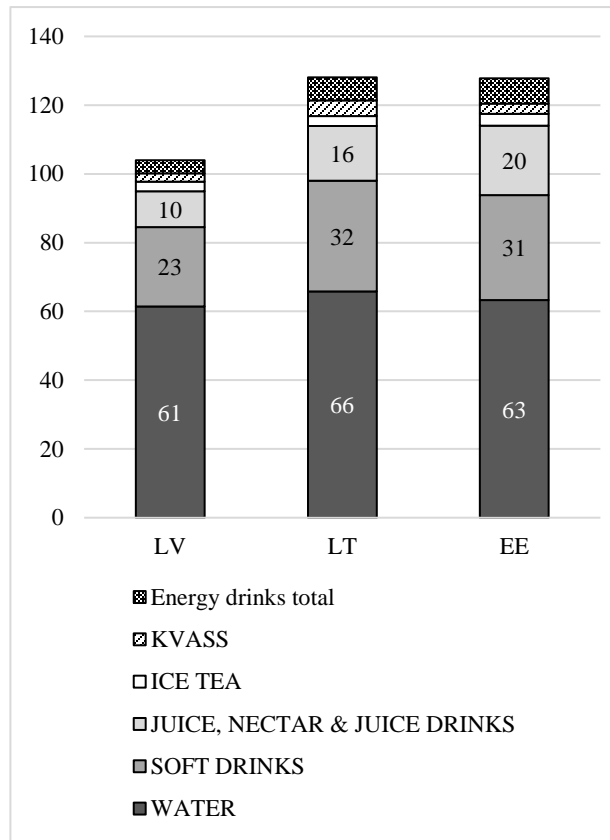
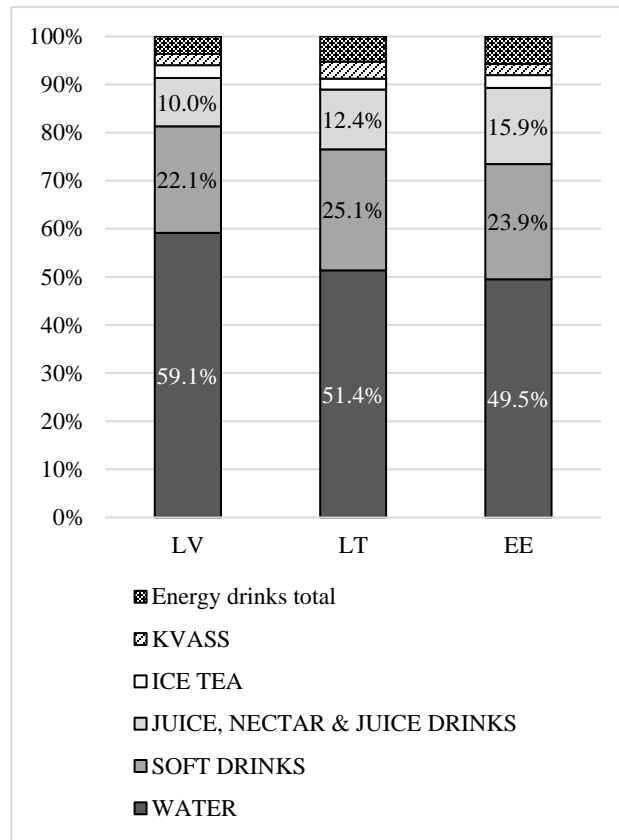


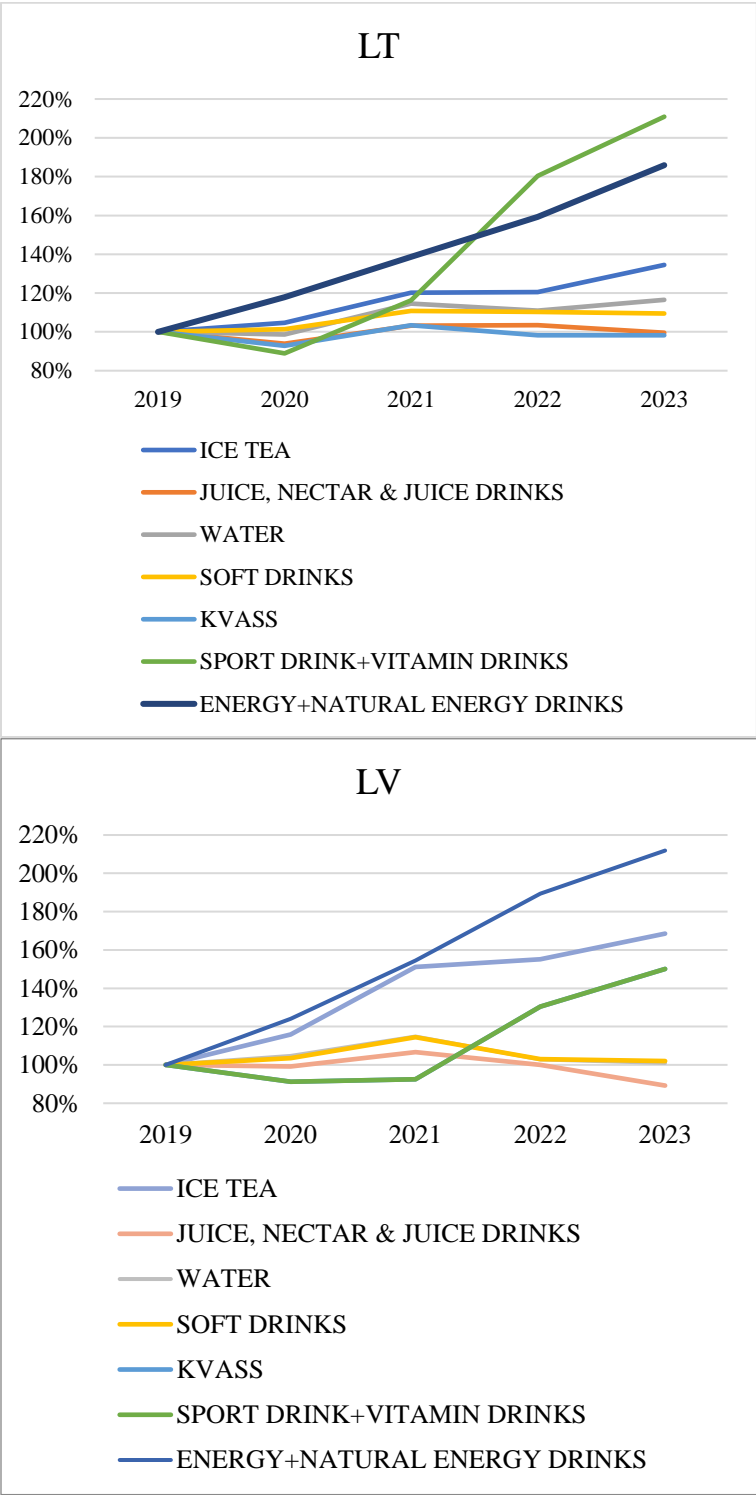
Figure 0.8: Structure of per capita sales of soft drinks in the modern trade retail market in the Baltic countries, in 2023, %

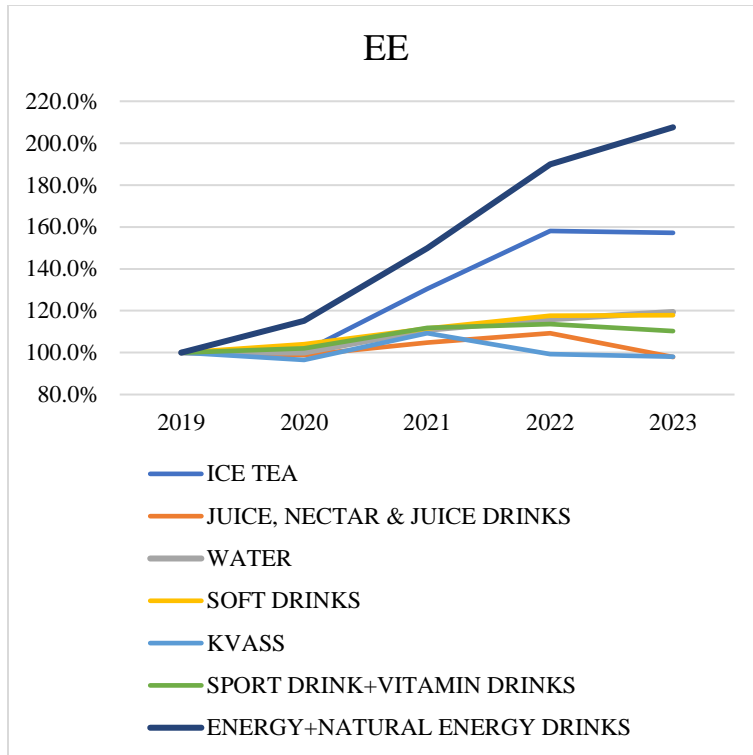


Source: authors' calculations using data on sales of soft drinks obtained from AC Nielsen and data on population from national statistical institutes.

Note: We use data on sales volume of non-alcoholic beverages (hereafter - soft drinks) in the modern trade retail market as a proxy for consumption. Modern trade retail market includes supermarkets, hypermarkets, and large-format stores. Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops).

Figure 0.9: Per capita sales of non-alcoholic beverages in the modern trade retail market in the Baltic countries, by type of beverage 2019=100%

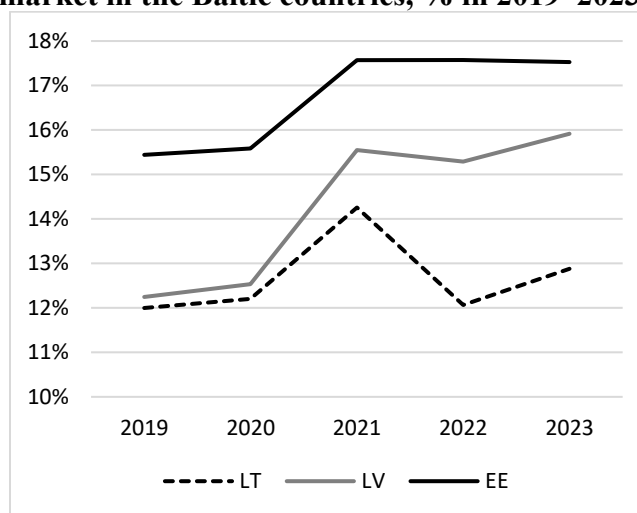




Source: authors' calculations using data on sales of soft drinks obtained from AC Nielsen and data on population from national statistical institutes.

Note: We use data on sales volume of non-alcoholic beverages (hereafter - soft drinks) in the modern trade retail market as a proxy for consumption. Modern trade retail market includes supermarkets, hypermarkets, and large-format stores. Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops).

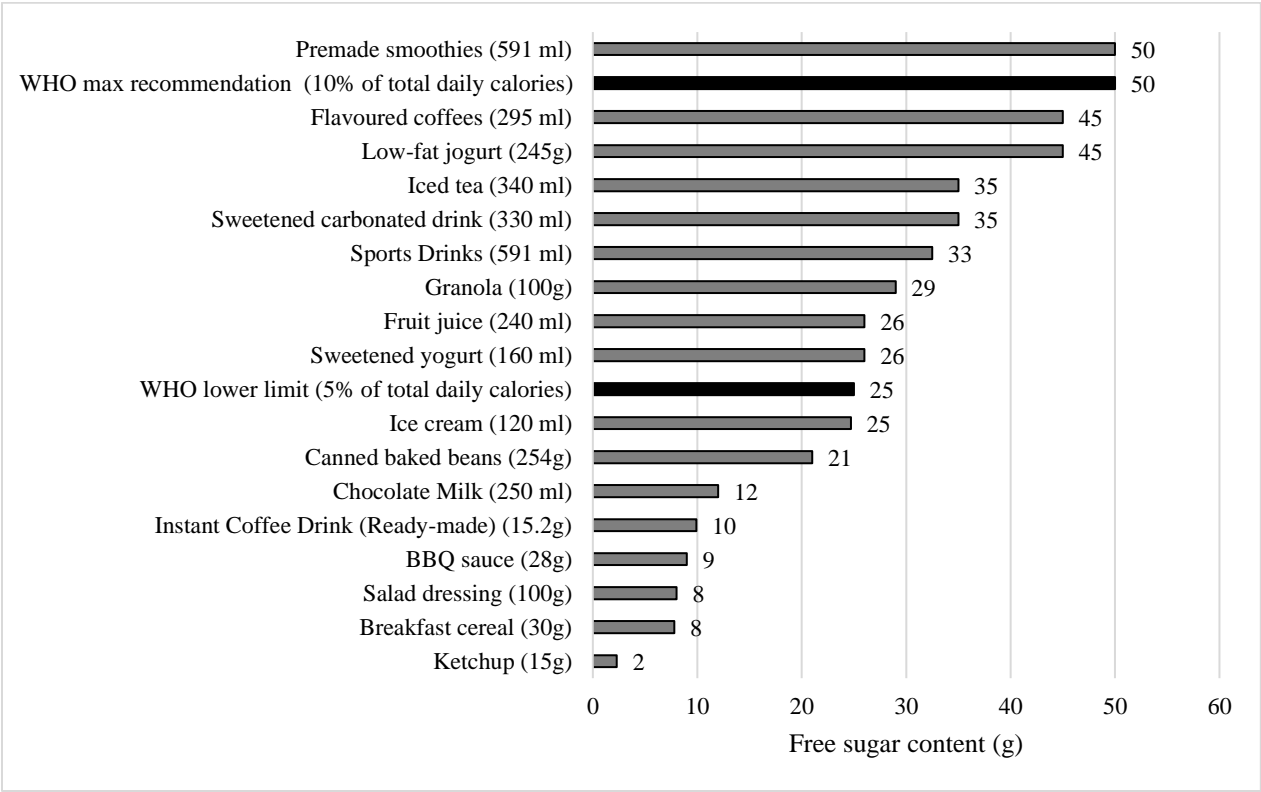
Figure 0.10: The share of light (no- and low-calorie) CSDs in total sales of CSDs in the modern trade retail market in the Baltic countries, % in 2019–2023



Source: authors' calculations using data on sales of soft drinks obtained from AC Nielsen.

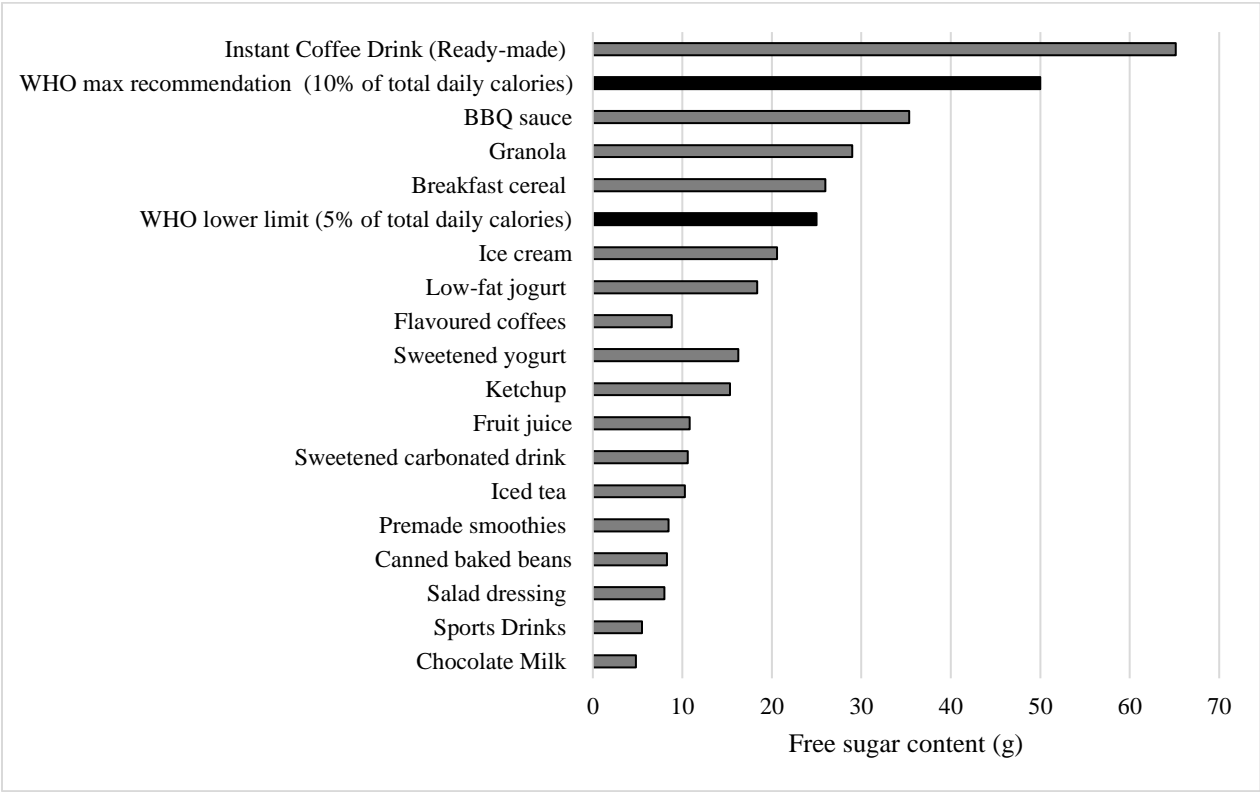
Note: We use data on sales volume of non-alcoholic beverages in the modern trade retail market as a proxy for consumption. Modern trade retail market includes supermarkets, hypermarkets, and large-format stores. Data does not cover traditional retail sector (small grocery stores, convenience stores, and mom-and-pop shops).

Figure 0.11: Free sugar content (g) in different products (standard unit size, indicated in parentheses) and WHO recommendations for free sugar intake, as % of total daily calories



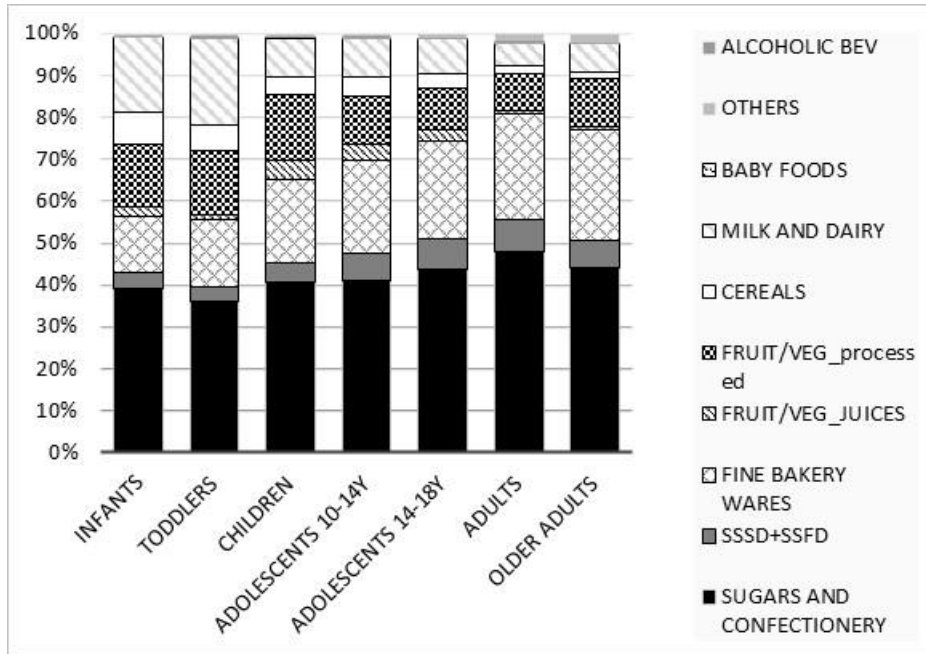
Source: Based on Centre for disease prevention and control (2015) data and Healthline (2023)

Figure 0.12: Free sugar content (g) per 100 ml/100 g of selected products and WHO recommendations for free sugar intake, as % of total daily calories



Source: Based on Centre for disease prevention and control data (2015) and Healthline (2023)

Figure 0.13: Structure of contribution of food categories to the mean added sugars intake by age category in Latvia, 2014



Note: Children refer to children aged 3-9 years. Adults refer to adults aged 18-64. Older adults refer to adults aged >65.

Source: The EFSA Comprehensive Food Consumption Database (2020) used in EFSA Panel on Nutrition, Novel Foods and Food Allergens (2022).

Note: Food groups:

Sugars and confectionery: Sugar and similar, confectionery and water-based sweet desserts;

SSSD+SSFD = Soft and fruit drinks sweetened with sugar;

Fine bakery wares = e.g. cakes, biscuits, pastries

Fruit / vegetable juices: Fruit/vegetable juices and nectars;

Fruit / vegetables processed: Processed fruits and vegetables excluding beverages;

Fruit / vegetables fresh: Fresh fruits, vegetables;

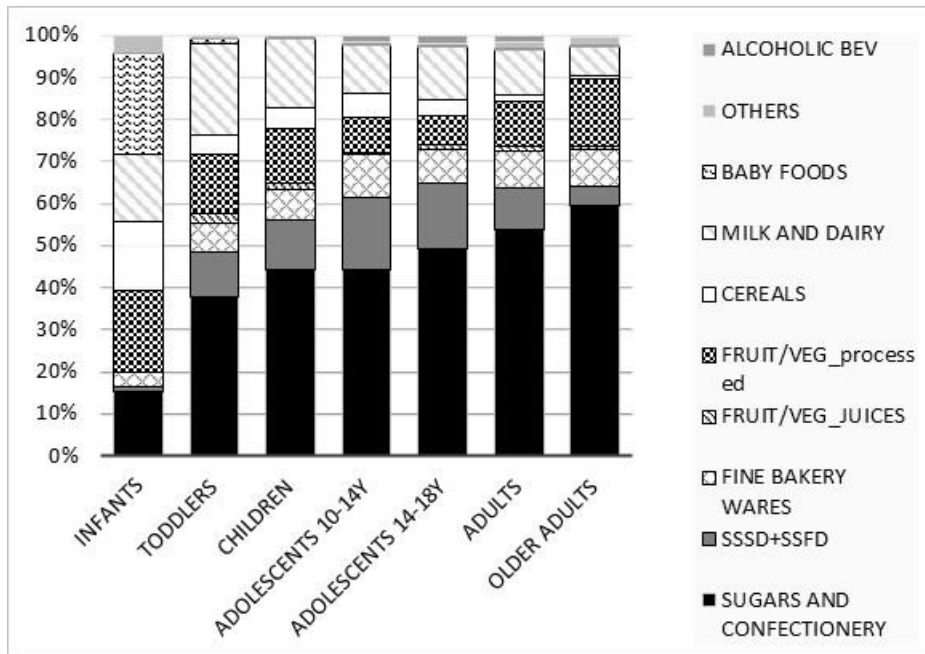
Cereals: Cereal and cereal-based products including bread but excl. fine bakery wares;

Milk and dairy: Milk and dairy products including dairy alternatives;

Baby foods: Foods for infants and young children;

Alcoholic beverages: Alcoholic beverages.

Figure 0.14: Structure of contribution of food categories to the mean added sugars intake by age category in Estonia, 2014



Note: Children refer to children aged 3-9 years. Adults refer to adults aged 18-64. Older adults refer to adults aged >65.
 Source: The EFSA Comprehensive Food Consumption Database (2020) used in EFSA Panel on Nutrition, Novel Foods and Food Allergens (2022).

Note: Food groups:

Sugars and confectionery: Sugar and similar, confectionery and water-based sweet desserts;

SSSD+SSFD = Soft and fruit drinks sweetened with sugar;

Fine bakery wares = e.g. cakes, biscuits, pastries

Fruit / vegetable juices: Fruit/vegetable juices and nectars;

Fruit / vegetables processed: Processed fruits and vegetables excluding beverages;

Fruit / vegetables fresh: Fresh fruits, vegetables;

Cereals: Cereal and cereal-based products including bread but excl. fine bakery wares;

Milk and dairy: Milk and dairy products including dairy alternatives;

Baby foods: Foods for infants and young children;

Alcoholic beverages: Alcoholic beverages.

Table 0.1. Implementation of tax on non-alcoholic beverages containing added sugar or artificial sweeteners in the EU and the United Kingdom, as of 2024

EU member state	Implemented since	Type of tax	Base	Tax rates	VAT rate
Belgium	January 1993	Excise tax on non-alcoholic sugared and non-sugared beverages	Non-alcoholic sugared and non-sugared beverages. Exemptions: non-flavoured waters and fruit juices.	There are 12 tax rates applied to different types of non-alcoholic beverages. The highest rate applied to sweetened beverages is EUR 11.92 per hectolitre.	6% (reduced rate)
Croatia	2020		Non-alcoholic beverages	EUR 1.33 per 100 litres for non-alcoholic beverages with 2–5 g of sugar per 100 ml, EUR 3.98 per 100 litres if the sugar content is 5–8 g /100 ml and EUR 7.96 per 100 litres if sugar content exceeding 8 g per 100 ml. In addition to these rates, there is a volume-base specific excise tax at the amount of EUR 2.65 per 100 litres of non-alcoholic beverage. Syrups and concentrates intended for the preparation of non-alcoholic beverages are similarly taxed at four rates based on sugar content. Higher tax rates are levied on energy drinks containing methylxanthine or taurine.	25% (standard rate)
Finland	January 2011	Excise duty on soft drinks	Soft drinks containing sugar, sugar-free soft drinks, and mineral waters.	<ul style="list-style-type: none"> • EUR 0.13 per litre is applied to sugar-free juices, waters, sugar free wine of fresh grapes (of 1.2% vol. or less) etc. • EUR 0.32 per litre is applied to the soft drinks containing added sugar or other sweetening matter or flavoured. 	14% (reduced rate)
France	January 2012	Excise tax	Drinks with added sugars or artificial sweeteners.	<ul style="list-style-type: none"> • The tax rate is based on added sugars content and increases with each g of added sugar: the tax rate varies from EUR 3.34/hectolitre (for drinks with less than 1 g per 100 ml of added sugars / litre) to €26.09/hectolitre (for drinks with more than 15 	5.5% and 10% depending on type of drink (both reduced rates).

EU member state	Implemented since	Type of tax	Base	Tax rates	VAT rate
				<p>g of added sugar per 100 ml).</p> <ul style="list-style-type: none"> • Higher rate for drinks with added sugar above 15 g / 100 ml: EUR 2,21/hectolitre for each additional g of added sugar per 100 ml. • Intense sweeteners are taxed at the rate of EUR 0.0334 per litre. Soft drinks with both added sugar and sweeteners are taxed cumulatively. 	
Hungary	January 2011	Excise tax - the public health product tax	Food products containing unhealthy levels of sugar, salt and other ingredients.	<ul style="list-style-type: none"> • EUR 0.02 per litre on drinks that have a sugar content of less than 8g per 100ml • EUR 0.06 per litre on drinks that have a sugar content of more than 8g per 100ml • EUR 0.16–0.96 per litre on energy drinks 	27% (standard rate)
Ireland	May 2018	Excise duty – Sugar Sweetened Drinks Tax	Drinks with more than 5 g of sugar per 100 ml. Juices are exempted.	<ul style="list-style-type: none"> • EUR 16.26 per hectolitre on drinks with a total sugar content of 5 g or more, but less than 8 g, per 100 ml. • EUR 24.39 per hectolitre on drinks with a total sugar content of 8 g or more per 100 ml. 	23% (standard rate)
Latvia	December 1999	Excise duty on soft drinks	Drinks with added sugar, sweetener, or other flavouring (excluding fruit and vegetable juices with less than 10 percent added sugar, flavoured waters without added sugars)	<ul style="list-style-type: none"> • EUR 7.40 per hectolitre for non-alcoholic beverages with sugar content less than 8 g / 100 ml. • EUR 17.50 per hectolitre is applied to non-alcoholic beverages with sugar content of 8 g and over per 100 ml and energy drinks. 	21% (standard rate)
Malta		Excise duty on non-alcoholic beverages	Bottled water and other non-alcoholic beverages (excluding juices)	<ul style="list-style-type: none"> • EUR 5 per 1 000 litres for waters offered for sale in non-returnable bottles is. • EUR 40 per 1 000 litres for other non-alcoholic beverages offered in non-returnable bottles. 	18% (standard rate)

EU member state	Implemented since	Type of tax	Base	Tax rates	VAT rate
Netherlands	1993	Beverage tax	All non-alcoholic drinks, regardless of sugar content, including drinks with added low- and no-calorie sweeteners, juices and bottled water.	There is a flat tax rate of EUR 26.13 per 100 litres	9% (reduced rate)
Poland	January 2021	Sugar tax	Beverages containing added sugars, sweeteners and caffeine or taurine	The tax rate is 0.50 PLN (0.12 EUR) per litre for a sugar content equal to or less than 5 g per 100 ml of beverage or for containing in any quantity at least one sweetener, PLN 0.05 (0.01 EUR) for each g of sugars exceeding 5 g in 100 ml of beverage).	23% (standard rate)
Portugal	February 2017	Excise tax on soft drinks	Drinks containing added sugar or artificial sweeteners. Exemptions: juices, nectars, chocolate milk drink-based yogurts.	<ul style="list-style-type: none"> • EUR 1.16 / 100 litres for drinks with sugar content less than 25 g /litre, • EUR 6.95 / 100 litres if sugar content ranging from 25 to 50 g per litre; • EUR 9.26 / 100 litres if sugar content ranging from 50 to 80 g per litre; • EUR 23.18 / 100 litres for drinks with sugar content is equal to or greater than 80 g per litre⁷⁰. 	23% (standard rate)
Romania	January 2024	Excise duty	Sugared soft drinks	<ul style="list-style-type: none"> • EUR 8.04 (RON 40) per 100 litres for soft drinks with a total sugar content between 5 g-8 g/100 ml • EUR 12.06 (RON 60) per 100 litres for soft drinks with a total sugar content exceeding 8 g/100 ml. 	19% (standard rate)
Spain, Catalonia	May 2017	Catalonian excise tax on sugar-sweetened beverages	Sugar-sweetened beverages, such as sodas, energy drinks, fruit juices made from concentrate, and flavoured water.	<ul style="list-style-type: none"> • EUR 0.08 per litre for drinks that contain between 5 and 8 g of sugar per 100 ml. • EUR 0.12 per litre for drinks that contain more than 8 g of sugar per 100 ml. • Drinks with less than 5 g of sugar per 100 ml are exempt from this tax. 	21% (standard rate)

⁷⁰ PwC Portugal. Indirect taxes. Available: <https://www.pwc.pt/en/pwcinformisco/statebudget/indirect-taxation.html>

EU member state	Implemented since	Type of tax	Base	Tax rates	VAT rate
United Kingdom	April 2018	Soft drinks industry levy - is a levy put on drink companies.	Drinks (a content of 1.2% alcohol or less) with at least 5 g of sugar per 100ml are taxed (other than fruit juice, vegetable juice, and drinks containing at least 75% milk).	<ul style="list-style-type: none"> • GBP 0.18 per litre on drinks that have a total sugar content of more than 5g and less than 8g per 100ml • GBP 0.24 per litre on drinks that have a total sugar content of 8g or more per 100ml 	20% (standard rate)

Source: when creating a table, the authors relied on the information provided in NYC Food Policy Center (2020) and Capacci S. Et.al. (2019) additionally, verifying that all of mentioned taxes and tax rates are in effect in 2024.

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Table 0.2: Price of 330 ml of an internationally comparable brand of sugar sweetened carbonated drinks (reported currency, US\$ and PPP\$) and indirect tax levels (% of price of the internationally comparable brand) in EU countries and selected non-EU countries, as of July 2024

	Price of 330 ml of an internationally comparable brand of sugar sweetened carbonated drinks*				Sugar content per 100 ml	VAT rate applied to sugar sweetened carbonate drinks, %	Taxes as a % of price of the internationally comparable brand		
	In reported currency	Reported currency	In US\$ at official exchange rates	International dollars (at PPP)			Excise tax, %	VAT, %	Total: excise tax and VAT, %
EU countries									
Austria	0.92	EUR	0.94	1.24	10.6	20%	0.0%	16.7%	16.7%
Belgium	0.79	EUR	0.81	1.02	10.6	6%	5.0%	5.7%	10.6%
Bulgaria	0.59**	EUR**	0.61**	1.13 ^e	10.6**	20%	0.0%	16.7%	16.7%
Croatia	6.69	HRK	0.91	2.04	11.2	25%	3.9%	20.0%	23.9%
Cyprus	0.62	EUR	0.64	1.11	10.6	19%	0.0%	16.0%	16.0%
Czech Republic	15.9	CZK	0.66	1.19	11.2	21%	0.0%	17.4%	17.4%
Denmark	11.55	DKK	1.58	1.74	10.5	25%	0.0%	20.0%	20.0%
Estonia	1.09	EUR	1.11	1.81	10.6	22%	0.0%	18.0%	18.0%
Finland	1.57	EUR	1.60	1.92	10.6	14%	6.7%	12.3%	19.0%
France	0.99	EUR	1.01	1.39	10.6	5.5%	5.7%	5.2%	10.9%
Germany	0.85	EUR	0.87	1.19	10.6	19%	0.0%	16.0%	16.0%
Greece	0.57	EUR	0.58	1.05	10.6	24%	0.00%	19.4%	19.4%
Hungary	228.36	HUF	0.58	1.49	11.2	27%	3.3%	21.3%	24.6%
Ireland	0.71**	EUR**	0.73**	0.78 ^e	10.6**	23%	11.3%	18.7%	30.0%
Italy	0.75	EUR	0.76	1.20	10.6	22%	0.0%	18.0%	18.0%
Latvia	0.95	EUR	0.97	1.78	10.6	21%	4.9%	17.4%	22.2%
Lithuania	0.63	EUR	0.64	1.27	10.6	21%	0.0%	17.4%	17.4%
Luxembourg	0.79**	EUR**	0.81**	1.02 ^e	10.6**	3%	0.0%	2.9%	2.9%
Malta	0.75**	EUR**	0.76**	0.74 ^e	10.6**	18%	1.8%	15.3%	17.0%
Netherlands	0.92	EUR	0.94	1.20	10.6	9%	9.4%	8.3%	17.6%
Poland	2.99	PLN	0.64	1.55	10.6	23%	8.8%	18.7%	27.5%
Portugal	0.76	EUR	0.77	1.35	10.6	23%	10.1%	18.7%	28.8%
Romania	2.95	RON	0.61	1.54	10.6	19%	6.7%	16.0%	22.7%
Slovakia	0.94	EUR	0.96	1.87	11.2	20%	0.0%	16.7%	16.7%
Slovenia	0.84	EUR	0.86	1.51	11.3	22%	0.0%	18.0%	18.0%
Spain	0.80	EUR	0.82	1.35	10.6	21%	0.0%	17.4%	17.4%
Sweden	10.99	SEK	1.08	1.26	10.6	12%	0.0%	10.7%	10.7%
Selected non-EU countries									
Norway	19.8	NOK	2.04	1.74	10	15%	0.0%	13.0%	13.0%

United Kingdom	0.6	GBP	0.73	0.89	10.6	20%	13.2%	16.7%	29.9%
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Source: WHO (2023)

Note: NA –not applicable – since not all countries reported price of 330 ml of an internationally comparable brand of sugar sweetened carbonated drinks to WHO (2023c),

e – authors` calculations using Eurostat prc_ppp_ind

* The data collection took place in July 2022 – June 2023 (WHO, 2023c).

**Since not all countries reported price of 330 ml of an internationally comparable brand of sugar sweetened carbonated drinks to WHO (2023), for calculation purposes we use the following prices: for Bulgaria we use price and sugar content per 100 ml reported by Romania (taking into account proximity of geographical location), for Ireland – data reported by United Kingdom, for Luxembourg – data reported by Belgium, Malta – data reported by Italy.

Table 0.3: Indirect tax levels (PPPS) for an internationally comparable brand of sugar-sweetened carbonated beverages (per 330 ml) % in EU countries, as of July 2024

	Excise tax, PPP \$	Rankin g	Value added, PPP%	Rankin g	Total indirect taxes, PPPS	Rankin g
Austria	0.00		0.21	15	0.21	17
Belgium	0.05	10	0.06	26	0.11	26
Bulgaria*	0.00		0.19	19	0.19	21
Croatia	0.08	8	0.41	1	0.49	1
Cyprus	0.00		0.18	20	0.18	22
Czech Republic	0.00		0.21	16	0.21	18
Denmark	0.00		0.35	2	0.35	8
Estonia	0.00		0.33	3	0.33	9
Finland	0.13	3	0.24	11	0.36	6
France	0.08	9	0.07	25	0.15	23
Germany	0.00		0.19	18	0.19	20
Greece	0.00		0.20	17	0.20	19
Hungary	0.05	11	0.32	4	0.37	5
Ireland*	0.09	6	0.15	21	0.23	12
Italy	0.00		0.22	14	0.22	15
Latvia	0.09	7	0.31	6	0.40	3
Lithuania	0.00		0.22	13	0.22	14
Luxembourg*	0.00		0.03	27	0.03	27
Malta*	0.01	?	0.11	23	0.13	25
Netherlands	0.11	4	0.10	24	0.21	16
Poland	0.14	1	0.29	7	0.43	2
Portugal	0.14	2	0.25	9	0.39	4
Romania	0.10	5	0.25	10	0.35	7
Slovakia	0.00		0.31	5	0.31	10
Slovenia	0.00		0.27	8	0.27	11
Spain	0.00		0.23	12	0.23	13
Sweden	0.00		0.14	22	0.14	24

Source: authors` calculations based on WHO (2023c)

Note: Collection of price data took place in July 2022 – June 2023 (WHO, 2023c).

*Since not all countries reported price of 330 ml of an internationally comparable brand of sugar sweetened carbonated drinks to WHO (2023), for calculation purposes we use the following prices: for Bulgaria we use price and sugar content per 100 ml reported by Romania (taking into account proximity of geographical location), for Ireland – data reported by United Kingdom, for Luxembourg – data reported by Belgium, Malta – data reported by Italy.

Table 0.4: Estimations of own price elasticities and cross-price elasticities of food products and beverages based on academic literature

	Interval of estimations	
Non-Alcoholic Beverages		
Regular soft drinks ^{2, 5}	-0.774	-0.63
Diet soft drinks ^{2, 3, 5}	-1.01	-0.283
Energy drinks ⁷	-1.34	
Fruit drinks and juices ^{1, 2, 5}	-1.025	-0.76
Hot beverages ⁶	-0.894	
Milk drinks ⁸	-0.579	
Tea and coffee ²	-0.912	
Water ²	-1.174	
Biscuits and cakes ^{5, 6, 9}	-1.007	-0.61
Chocolate and confectionery ^{3, 5, 9}	-1.27	-0.74
Chocolates ⁷	-0.224	
Pastry and savoury snacks		
Pastry products ^{5, 7}	-1.52	-0.53
Savory snacks ^{6, 9}	-2.26	-0.57
Sweet and salty snacks and desserts		
Sweet spreads ⁹	-0.676	
Desserts ⁸	-0.479	
Sweets, salty snacks ^{3, 8}	-1.15	-0.84
Sweets/sugars ^{1, 3}	-0.34	-0.311
Sauces, sugar, condiments, dressings ^{5, 6, 7, 8}	-1.321	-1.004
Bakery Products, cereals, and pasta:		
Chilled bakery products ⁶	-0.302	
Packet breakfast ⁶	-0.849	
Bread and breakfast cereals, pasta ^{1, 4, 5, 7, 8}	-1.68	-0.211
Canned Goods ⁶	-0.938	
Pickle ⁶	-2.209	
Ready-to-Eat and Instant Foods ^{8, 9}	-1.314	-0.595
Meat and Fish:		
Prepared processed meat ^{7, 8}	-1.04	-1.061
Tinned and cured fish ⁸	-0.413	
Cold cuts ⁸	-0.768	

Dairy Products		
Yoghurt ⁷	-1.418	
Ice-cream ^{5,7}	-1.42	-1.134

Source: made by authors using

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Annex 2

Table 0.5: Short-term or direct impact of introduction of excise tax on soft drinks in Lithuania and Estonia

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Regular CSDs												
Price elasticity of demand	-0.70	-0.70	-0.76	-0.76	-1.01	-1.01	-0.76	-0.76	-0.59	-0.59	-0.76	-0.76
Degree of the excise tax pass-on	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
Price per litre before the tax increase, EUR (Average retail price in Jan-Feb 2024)			1.35				1.03				1.40	
Excise tax per litre before the tax increase, EUR			0.14				0				0	
Excise tax per litre after the tax increase, EUR			0.175				0.175				0.175	
VAT rate, %			21%				21%				22%	
Price per litre after the tax increase, EUR	1.39	1.37	1.39	1.37	1.24	1.14	1.24	1.14	1.61	1.50	1.61	1.50
Change in price, %	3.15	1.57	3.15	1.57	20.58	10.29	20.58	10.29	15.30	7.65	15.30	7.65
Change in quantity sold, %	-2.19	-1.10	-2.41	-1.20	-20.76	-10.38	-15.73	-7.86	-8.99	-4.49	-11.70	-5.85
Change in excise tax revenues from regular CSDs, % from pre-reform scenario	22.3	23.6	22.0	23.5								

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Potential revenues from introduction of excise tax on regular CSDs, mln EUR* estimation based on the modern trade retail market sales in 2023	1.3	1.3	1.2	1.3	11.0	12.4	11.7	12.8	5.4	5.6	5.2	5.6
Light (no- and low-calorie) CSDs												
Price elasticity of demand	-0.18	-0.18	-0.28	-0.28	-0.47	-0.47	-0.28	-0.28	-0.18	-0.18	-0.28	-0.28
Degree of the excise tax pass-on	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
Price per litre before the tax increase, EUR (Average retail price in Jan-Feb 2024)			1.33				1.11				1.48	
Excise tax per litre before the tax increase, EUR			0.074				0				0	
Excise tax per litre after the tax increase, EUR			0.074				0.074				0.074	
VAT rate, %			21%				21%				22%	
Price per litre after the tax increase, EUR	1.33	1.33	1.33	1.33	1.20	1.15	1.20	1.15	1.57	1.53	1.57	1.53
Change in price, %	0.00	0.00	0.00	0.00	8.07	4.03	8.07	4.03	6.09	3.05	6.09	3.05
Change in quantity sold, %	0.00	0.00	0.00	0.00	-3.82	-1.91	-2.23	-1.12	-1.08	-0.54	-1.69	-0.84
Change in excise tax revenues from light CSDs, % from pre-reform scenario	0.0	0.0	0.0	0.0								

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Potential revenues from introduction of excise tax on regular CSDs, mln EUR* estimation based on the modern trade retail market sales in 2023	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.6	0.6	0.6	0.6
Flavoured water												
Price elasticity of demand	-0.80	-0.80	-0.64	-0.64	-0.41	-0.41	-0.64	-0.64	-0.73	-0.73	-0.64	-0.64
Degree of the excise tax pass-on	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
Price per litre before the tax increase, EUR (Average retail price in Jan-Feb 2024)			1.03				0.71				1.02	
Excise tax per litre before the tax increase, EUR			0.074				0				0	
Excise tax per litre after the tax increase, EUR			0.074				0.074				0.074	
VAT rate, %			21%				21%				22%	
Price per litre after the tax increase, EUR	1.03	1.03	1.03	1.03	0.80	0.76	0.80	0.76	1.11	1.07	1.11	1.07
Change in price, %	0.00	0.00	0.00	0.00	12.53	6.26	12.53	6.26	8.83	4.41	8.83	4.41
Change in quantity sold, %	0.00	0.00	0.00	0.00	-5.09	-2.55	-8.08	-4.04	-6.45	-3.23	-5.69	-2.85
Change in excise tax revenues from flavoured water, % from pre-reform scenario	0.0	0.0	0.0	0.0								

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Potential revenues from introduction of excise tax on regular CSDs, mln EUR* estimation based on the modern trade retail market sales in 2023	0.0	0.0	0.0	0.0	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Ice tea												
Price elasticity of demand	-0.68	-0.68	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.57	-0.57	-0.63	-0.63
Degree of the excise tax pass-on	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
Price per litre before the tax increase, EUR (Average retail price in Jan-Feb 2024)			1.08				1.01				1.18	
Excise tax per litre before the tax increase, EUR			0.074				0				0	
Excise tax per litre after the tax increase, EUR			0.074				0.074				0.074	
VAT rate, %			21%				21%				22%	
Price per litre after the tax increase, EUR	1.08	1.08	1.08	1.08	1.09	1.05	1.09	1.05	1.27	1.22	1.27	1.22
Change in price, %	0.00	0.00	0.00	0.00	8.91	4.45	8.91	4.45	7.66	3.83	7.66	3.83
Change in quantity sold, %	0.00	0.00	0.00	0.00	-5.62	-2.81	-5.60	-2.80	-4.36	-2.18	-4.81	-2.41
Change in excise tax revenues from ice tea, % from pre-reform scenario	0.0	0.0	0.0	0.0								

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Potential revenues from introduction of excise tax on regular CSDs, mln EUR* estimation based on the modern trade retail market sales in 2023	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.3	0.3	0.3	0.3
Kvass												
Price elasticity of demand	-1.71	-1.71	-1.32	-1.32	-1.00	-1.00	-1.32	-1.32	-1.26	-1.26	-1.32	-1.32
Degree of the excise tax pass-on	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
Price per litre before the tax increase, EUR (Average retail price in Jan-Feb 2024)			1.10				0.99				1.03	
Excise tax per litre before the tax increase, EUR			0.074				0				0	
Excise tax per litre after the tax increase, EUR			0.074				0.074				0.074	
VAT rate, %			21%				21%				22%	
Price per litre after the tax increase, EUR	1.10	1.10	1.10	1.10	1.08	1.03	1.08	1.03	1.12	1.07	1.12	1.07
Change in price, %	0.00	0.00	0.00	0.00	9.07	4.54	9.07	4.54	8.80	4.40	8.80	4.40
Change in quantity sold, %	0.00	0.00	0.00	0.00	-9.11	-4.55	-12.00	-6.00	-11.08	-5.54	-11.65	-5.83
Change in excise tax revenues from kvass, % from pre-reform scenario	0.0	0.0	0.0	0.0								

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Potential revenues from introduction of excise tax on regular CSDs, mln EUR* estimation based on the modern trade retail market sales in 2023	0.0	0.0	0.0	0.0	0.9	0.9	0.8	0.9	0.3	0.3	0.3	0.3
Energy drinks												
Price elasticity of demand	-0.56	-0.56	-0.57	-0.57	-0.60	-0.60	-0.57	-0.57	-0.55	-0.55	-0.57	-0.57
Degree of the excise tax pass-on	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
Price per litre before the tax increase, EUR (Average retail price in Jan-Feb 2024)			3.13				2.74				3.62	
Excise tax per litre before the tax increase, EUR			0.14				0				0	
Excise tax per litre after the tax increase, EUR			0.175				0.175				0.175	
VAT rate, %			21%				21%				22%	
Price per litre after the tax increase, EUR	3.17	3.15	3.17	3.15	2.95	2.85	2.95	2.85	3.83	3.72	3.83	3.72
Change in price, %	1.35	0.68	1.35	0.68	7.73	3.86	7.73	3.86	5.90	2.95	5.90	2.95
Change in quantity sold, %	-0.76	-0.38	-0.77	-0.39	-4.65	-2.33	-4.40	-2.20	-3.22	-1.61	-3.36	-1.68
Change in excise tax revenues from energy drinks, % from pre-reform scenario	24.0	24.5	24.0	24.5								

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Potential revenues from introduction of excise tax on regular CSDs, mln EUR* estimation based on the modern trade retail market sales in 2023	0.2	0.2	0.2	0.2	3.0	3.0	3.0	3.0	1.5	1.5	1.5	1.5
Sport drinks and vitamin drinks												
Price elasticity of demand	-1.95	-1.95	-0.87	-0.87	-0.63	-0.63	-0.87	-0.87	-0.03	-0.03	-0.87	-0.87
Degree of the excise tax pass-on	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
Price per litre before the tax increase, EUR (Average retail price in Jan-Feb 2024)			2.50				2.81				2.85	
Excise tax per litre before the tax increase, EUR			0.074				0				0	
Excise tax per litre after the tax increase, EUR			0.074				0.074				0.074	
VAT rate, %			21%				21%				22%	
Price per litre after the tax increase, EUR	2.50	2.50	2.50	2.50	2.90	2.86	2.90	2.86	2.94	2.89	2.94	2.89
Change in price, %	0.00	0.00	0.00	0.00	3.19	1.59	3.19	1.59	3.17	1.59	3.17	1.59
Change in quantity sold, %	0.00	0.00	0.00	0.00	-1.99	-1.00	-2.76	-1.38	-0.09	-0.04	-2.75	-1.38
Change in excise tax revenues from energy drinks, % from pre-reform scenario	0.0	0.0	0.0	0.0								

Scenario:	LV				LT				EE			
	1	2	3	4	1	2	3	4	1	2	3	4
Price elasticity of demand	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.	Est.	Est.	Av.	Av.
Potential revenues from introduction of excise tax on regular CSDs, mln EUR* estimation based on the modern trade retail market sales in 2023	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total potential revenues, mln EUR	1.5	1.5	1.5	1.5	17.9	19.6	18.6	19.9	9.6	10.0	9.5	9.9

Source: authors' calculations using data on prices and sales volume of soft drinks in 2019–2024 obtained from AC Nielsen.

Notes: Est.: price elasticity of demand estimated using econometric approach on Latvian, Estonian and Lithuanian data. Av.: price elasticity of demand average across Baltic countries (calculated as a mean value).