

# SWEET OR SOUR? THE REAL TASTE OF THE POLISH SUGAR TAX

**Marcin BURZEC**

Assistant Professor, The John Paul II Catholic University of Lublin  
E-mail: mburzec@kul.pl

## **Abstract**

The negative impact of excessive consumption of sugars on human health makes it necessary to change dietary trends. Among the many instruments used in this regard are taxes imposed on unhealthy foods, including sweetened beverages. Taxes imposed on sweetened beverages are commonly referred to as sugar taxes. It is assumed that their purpose is to change consumer habits. Thus, in the case of a sugar tax, the fiscal objective is replaced by a stimulus objective. It should be noted that individual European countries are increasingly bold in introducing so-called sugar taxes into their tax systems. This was also the case in Poland, where a levy on foodstuffs imposed on sweetened beverages was introduced as of 1 January 2021. The aim of this article is therefore to verify the assumptions of the legislature, that considered the levy on foodstuffs to be an effective instrument with the purpose of reducing the consumption of sugars. However, this objective does not seem to have been fully realized. An analysis of the design elements of the levy on foodstuffs as well as of the figures shows that the levy does not entirely change consumer preferences. Despite this, paradoxically, the introduction of the levy has resulted in a reduction in the consumption of sugars contained in sweetened beverages.

**Keywords:** *sugar tax; taxation of sweetened beverages; tax on sweetened beverages; levy on foodstuffs*

## 1. Introduction

Scientific research on the negative impact of sugar on human health has been carried out for many years. Excessive consumption increases prevalence of obesity and therefore the risk of lifestyle diseases, such as vascular and cardiovascular diseases, type 2 diabetes, dental caries and cancer. In this context, the ever-increasing consumption of sweetened beverages calls for attention. Numerous studies point to the impact of sweetened beverages, as well as sugar itself, on human health (Malik, Popkin, Bray, Despres, Hu, 2010, pp. 1356-1364; Bray, Popkin, 2014, pp. 950-956). Tax levies have been proposed as an instrument, among others, that can influence a change in consumer habits. In recent years, there has been a worldwide trend to impose taxes on so-called unhealthy foods. These include the so-called fat tax, chips tax, soda tax and sugar tax. In all of these taxes, the legislature's intention is the goal of stimulating the reduction of the consumption of unhealthy foods.

On January 1, 2021, Poland imposed a levy on sweetened foodstuffs, commonly known as the sugar tax. For the purpose of this article, the term sugar tax is used interchangeably alongside the term "levy on foodstuffs". This charge is levied when drinks containing sugars, sweeteners and taurine<sup>1</sup> and caffeine are placed on the domestic market. The purpose of this article is to verify the validity of the legislature's assumptions behind the implementation of the levy on foodstuffs. The article first presents possible concepts for the taxation of sweetened beverages. Then, against this background, the legal regulations adopted in Poland are discussed. The above, by analysing data from the Polish Ministry of Finance, makes it possible to verify the effectiveness of the purpose for which the sugar tax was introduced. It should be noted that, in principle, it was assumed that this tax, owing to its stimulating function, is an instrument with which the state influences the public health of its citizens.

## 2. The concept of tax imposed on sweetened beverages

The range of products that are harmful from the point of view of consumer health has expanded over the years. As a consequence, the scope of taxes imposed on unhealthy products has also expanded. Alcohol and tobacco, which were initially taxed, have been joined by products such as food that contain

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<sup>1</sup> The consumption of taurine, in adequate amounts, does not adversely affect health. Its possible harm, however, is due to the fact that, along with caffeine, it is a common ingredient in energy drinks. Some energy drinks contain more than 10 times the recommended daily limit of taurine. It has been indicated that, like caffeine, taurine has a physiological effect on intracellular calcium concentration in smooth muscle, which can lead to pathological coronary vasoconstriction (Baumand, Weiß, 2001, pp. 75-82). In Poland, the number of young people consuming energy drinks is steadily increasing. In the explanatory memorandum to the law introducing the levy on foodstuffs, it was reported that 67% of teenagers consumed energy drinks, 16% of them quite frequently. The survey was conducted on a sample of 2,629 people aged between 12 and 20 years.

excessive levels of fat or sugars, as well as sweetened beverages (Perkins, 2014, pp. 101-140). It is often argued in the literature that such taxes are highly regressive. This means that it is the poorest sections of society that are being taxed the most. Some argue that these people are in a way penalised for choosing undesirable foodstuffs while lacking the alternative of access to so-called healthy products. It is especially evident as studies have established that people with lower material status tend to consume less healthy products in greater quantities than more affluent individuals (Hoffer, Shughart, Thomas, 2014; Hoffer, Shughart, Thomas, 2014, pp. 47-64; Brzezinski, 2021, pp. 9-24). It is often argued that taxes on unhealthy products are an attractive instrument for legislatures due to the fact that the public is more likely to accept new fiscal burdens whose existence is justified by the need to protect higher values, which in this case is human health (Liu, 2018, pp. 769-771). Proponents of the introduction of such a tax hold that people who are convinced that a product is taxed for the sake of health rather than for purely fiscal reasons are more likely to change their consumption habits (Thow, Jan, Leeder, Swinburn, 2010, pp. 609-614).

The issue of the use of fiscal instruments to change food habits is an extremely sensitive matter. The literature argues that their value largely depends on the design of the taxes themselves as well as the broader context within which they are applied (Sassi, Belloni, Capobianco, 2013). There are several approaches to taxing sweetened beverages in European countries. In Spain, a higher value-added tax rate may be applied to drinks with a high sugar content<sup>2</sup>. This has resulted in a decline in their consumption among the least affluent group of consumers (Martínez Jorge, Martínez Santos, Galindo, 2022). An excise duty may also be charged on sweetened beverages, as is the case in Belgium, Portugal, Finland and France. Some countries establish new taxes (levies) on products with high sugar content. Taxes (levies) on beverages with high sugar content are to be classified as indirect taxes that have a price-setting character and whose ultimate burden is borne by the final consumer. Such a tax can be an effective instrument to influence consumer behavior. Evaluating the above three concepts for the taxation of sweetened beverages, it appears that the most optimal solution is to impose an excise duty on these items. Indeed, if we assume that the purpose of a sugar tax is to increase the price of the final product so as to provoke a change in consumer habits, then excise duty seems to be the best way to do this. The value of the excise tax itself is included in the tax base when determining the value-added tax. Thus, we get a greater effect in terms of achieving the objective. This happens by imposing a certain rate of excise duty, which increases the net price of the product which is then increased by the value-added tax, ultimately raising the final cost of the product. However, it should be noted that, from the point of view of the purpose for which sweetened beverages are priced, the same effect can be achieved by

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<sup>2</sup> In Spain, from 1 January 2021, the VAT rate on sweetened beverages increased from 10% to 21%. However, the higher rate is not imposed on sweetened beverages that are sold in bars.

establishing new fees, levies or taxes, provided that they are included in the tax base of the goods and services tax. Therefore, the implementation of a concept on the basis of which the rate of value added tax for a harmful product is increased does not fully achieve the intended non-fiscal objectives. In this context, focus should be on the level of tax rates imposed on sweetened beverages. Such rates can be defined in terms of percentage and amount. For taxes levied on unhealthy foods, including sweetened beverages, the use of specific rates is more desirable. In taxes levied on sweetened beverages, the burden of the tax may result from the introduction of appropriately specified ingredients that affect human health (e.g. sugar, taurine, caffeine) or the quantity of the ingredient in question. Thus, the quota rate increases the price of all products in the same way. There is, therefore, a greater chance that the desired goal of increasing the price of the final product, resulting in a change in consumption habits, will be attained. Worse effects may occur with a percentage rate (Cnossen, 2005, pp. 6-7). In such a situation, the non-fiscal purpose of the tax will not be realised when the producer lowers the final price of the product by, for example, using less expensive products that contain another ingredient that is not good for a person's health. The countries that have introduced *the* tax on sweetened beverages have observed a trend toward steadily increasing tax rates. This is due to two, closely related, reasons. First, as already indicated in the introduction, rates of this type of tax are set in specific amounts. So, in order to avoid inflation-induced depreciation, it becomes necessary to increase them. This can be done by introducing inflation-adjustment mechanisms into the tax structure or *ad hoc* adjustments made from time to time by the legislature (Thuronyi, 1996, pp. 435-440). Failure to increase tax rates nullifies the point of introducing such taxes. If tax rates are set too low, the public health purpose of setting taxes on sweetened beverages is not achieved. Available research shows that taxes on sweetened beverages realise the stimulating objective only when they increase the price of the product by at least 20% (Briggs, Mytton, Kehlbacher, Tiffin, Rayner, Scarborough, 2013). It is therefore reasonable that quota rates should apply in sugar taxes. They can be designed in two ways. First, a single tax rate can be applied to a given product that meets certain parameters. When more than one product is taxed (e.g. sweetened beverages, nectars), tax rates usually vary depending on the type of the product. Second, it is possible to impose two rates on a given object of taxation. In this situation, a fixed rate and a variable rate are applied. The fixed rate is levied on any product that meets certain parameters (e.g. a sweetened beverage containing a minimum amount of sugar), while the variable rate is levied additionally when the amount of sugar in the product exceeds a pre-set limit. From the point of view of the stimulating objective of a sugar tax, the concept of a fixed rate and a variable rate is more desirable. It raises the price of the product and stimulates producers of sweetened beverages to reduce the sugar content in their drinks.

In taxes levied on unhealthy foods, the way in which the object of taxation is shaped is important. Usually, taxes are imposed when the product in question is placed on the market within the territory of the state. It should be noted that taxation may apply to all non-alcoholic beverages, all sweet drinks, including those containing naturally produced sugars and drinks with added sugar or sweeteners. Soft drinks are usually the object of normative taxation acts and, depending on the choice made by the specific country, the term may be defined differently. These are primarily beverages intended for human consumption that contain added sugar or other sweeteners. Concentrates, in various forms, intended for the preparation of beverages may also be considered under the non-alcoholic beverages category<sup>3</sup>. Sometimes, as in Belgium, fruit or vegetable juices may also be taxed. However, as a general rule, a beverage that contains natural sugars or in which a significant amount of natural sugars has been included will be excluded from taxation. For example, in Hungary, nectar, fruit juice and vegetable juice that contain 50% or more fruit or vegetables and products made with 50% or more milk solids are not taxable. The promotion of beverages containing natural sugars at the expense of those containing sugars added during production is in line with the philosophy of taxes on unhealthy foods, including sweetened beverages. However, in order to be consistent, when levying taxes on sweetened drinks, the proportion of natural sugars should be set at a fairly high level. On the other hand, such products, although they contain natural sugars, still contain sugars that, in large quantities, can have a negative impact on the human body. In the concept of the taxes in question, drinks that contain ingredients that are substitutes for sugars are sometimes given preferential treatment. This largely depends on how the purpose of the law is defined and how strong the lobby of manufacturers of sweetened beverages is. Turning to the question of the scope itself, it can be further clarified by making the tax liability dependent on the sugar content per unit (e.g. 100 ml). This means that the tax will be levied when a prescriptively fixed amount of sugar is exceeded (e.g. in Hungary, the public health product tax - *népegészségügyi termékadó* is only levied on beverages whose content exceeds 8 gr per 100 ml) or that the tax rate increases when the prescriptively fixed amount is exceeded, or that an additional variable rate is imposed, as already indicated above. In addition to beverages with a certain sugar content, taxes on unhealthy foods can also be imposed on other beverages, such as coffee, as is the case in Croatia<sup>4</sup> or in Belgium,<sup>5</sup> or substances added to energy drinks, as is the case in Hungary's public health product tax, *népegészségügyi*

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<sup>3</sup> Such a situation exists in Portugal. See: article 87-A sec. 1 letter c) Código dos impostos especiais de consumo (Decreto-Lei n.º 73/2010, de 21/06).

<sup>4</sup> Article 4 section 2 of Zakon o posebnom porezu na kavu i bezalkoholna pića (NN 72/2013.). According to the above article, coffee is considered to include roasted coffee, extracts, essences, coffee concentrates or preparations based on them, or coffee substitutes.

<sup>5</sup> Article 9 of Loi relative au régime d'accise des boissons non alcoolisées et du café (Loi du 21 décembre 2009).

*termékadó*. This tax for example, is levied on methylxanthine when it exceeds 15 milligrams per 100 milliliters, or taurine, ginseng and L-arginine when they exceed 10 milligrams per 100 millilitres. The scope of the subject matter in the Hungarian tax is defined very broadly. It applies not only to the supply of soft drinks and energy drinks but also, for example, to pre-packaged confectionery, snacks, packaged food condiments, flavored beers or fruit flavorings<sup>6</sup>. Some products containing sugar will not be taxed as they are considered goods of a special nature. For example, in Finland<sup>7</sup> or the UK<sup>8</sup>, medicinal products or infant foods are not taxed. In Belgium, drinks consisting of fruit or vegetable juices intended for infants, among other products, are exempt.

### 3. Levy on foodstuffs - Polish sugar tax

The main objective of the levy on foodstuffs introduced into the Polish legal system<sup>9</sup> is to promote pro-healthy dietary choices and to improve the quality of the diet by reducing the consumption of sugary drinks (Gajewski, 2022, pp. 69-84). In this context, the legislator uses the expression levy, while *de facto* we are dealing with a tax. Indeed, tax law scholarship points out that a feature that distinguishes a tax from a levy is that a tax lacks equivalence in return for its payment (Casalta Nabais, 2012, pp. 45-51). In the case of a levy on foodstuffs, the taxpayer does not receive any consideration from the public-law entity. Therefore, although in the semantic sphere we are dealing with a levy, in reality the levy on foodstuffs is a tax. In addition, the levy in question is a special purpose levy, as 96.5% of the proceeds from this levy go to the National Health Fund, not the state budget, and the proceeds are earmarked for promotion and for combating diseases caused by excessive consumption of sugars. The remaining 3.5 % is revenue that feeds the state budget<sup>10</sup>.

Under Polish law, the levy on foodstuffs is imposed on the introduction onto the domestic market of beverages to which sugars that are monosaccharides or disaccharides have been added and foodstuffs containing the above substances, as well as sweeteners, as referred to in Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008.<sup>11</sup> Due to the fact that the consumption of energy drinks is becoming increasingly popular among younger consumers in Poland, the legislature has

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<sup>6</sup> Népegészségügyi termékadó 2023, Information Brochure of the National Tax and Customs Office (Nemzeti Adó- és Vámhivatal), pp. 2-18.

<sup>7</sup> § 1 section 2 Laki virvoitusjuomaverosta 1127/2010

<sup>8</sup> Article 10 of the Soft Drinks Industry Levy Regulations 2018 (2018 No.41).

<sup>9</sup> The levy is regulated in articles 12a to 12k of the Act of 11 September 2015 on public health (Journal of Laws of 2022, item 1608), hereinafter: Public Health Act.

<sup>10</sup> Article 12c of the Public Health Act.

<sup>11</sup> According to the regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives (Official Journal of the European Union L 354/16), hereinafter: regulation no. 1333/2008.

also extended the levy on foodstuffs to the introduction on the domestic market of drinks to which caffeine or taurine has been added.

Although the economic burden of the levy on foodstuffs is borne by consumers of beverages that contain the aforementioned substances, as with any indirect tax, the formal taxpayers will be those who place the beverages on the domestic market. Thus, liability to pay this levy will rest with those who sell beverages to retail outlets or those who retail beverages in a situation where such a seller is the producer, importer or buyer of beverages as part of an intra-community purchase of goods. The party ordering the beverage in question may be also be liable to pay the levy. This is the case when the composition of the beverage subject to the levy is an element of a contract concluded by the producer which concerns the production of that beverage for the purchaser<sup>12</sup>.

First, the introduction on the national market of beverages containing the substances indicated above is key in the context of the emergence of the liability to pay the levy. Second, a beverage must be placed on the national market. Such a beverage is understood to mean a foodstuff in the form of a beverage and a syrup which is a foodstuff which contains one or more substances which are monosaccharides or disaccharides, foodstuffs containing the above substances, sweeteners, caffeine or taurine. Thus, a beverage is both a beverage intended for direct consumption by the consumer and a beverage or syrup in liquid form, which, at the time when the liability to pay the duty arises, is intended for the preparation of beverages for direct consumption via dilution or mixing with other ingredients.

A levy on foodstuffs will not be charged where the above substances occur naturally in the beverage or syrup. This means that substances which occur naturally should be disregarded when determining the amount of the levy, and the levy should only be charged on those substances which do not occur naturally in the beverage. This is the case when both naturally occurring substances and substances that have been added during the production process are present in the beverage in question. This is particularly relevant when the manufacturer of the beverage, who has relevant data, is able to determine the content of natural and added sugars in the beverage. In this context, the established line of judicial decisions holds that the calculation of the levy for such beverages should not be based solely on the information printed on the product label, particularly where the label does not accurately indicate the substances contained in the beverage.<sup>13</sup> Therefore, the Polish legislature has chosen to charge solely those beverages which contain relevant amounts of the aforementioned substances only when their content results directly from being added during the production process and not from their natural formation as part of that process, for example sugars found in fruit or fruit juices or caffeine contained in coffee brew. At the same time, in the interpretation of both the tax authorities and administrative courts deciding on the levy on foodstuffs, the fact

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<sup>12</sup> Art. 12d of the Public Health Act.

<sup>13</sup> Judgment of the Supreme Administrative Court of 1 March 2023, ref. no. III FSK 1278/22.

of the addition of certain substances containing sugars or sweeteners becomes crucial for the levy to be imposed, even if it is neutral for the content of sugars in the final product. This may be the case in non-alcoholic beer. Despite the fact that often the ingredients added to such beer during the production process introduce a negligible amount of sugars and have not been added directly for the purpose of sweetening, the final product such as non-alcoholic beer will be charged with the levy on foodstuffs. This is because this beverage will contain foodstuffs that have sugars added in the course of production<sup>14</sup>. The construction of the legislation and the interpretation made on its basis may be puzzling if we consider the purpose behind the introduction of the levy in question. It is to reduce the consumption of beverages with a high sugar content by discouraging consumers by means of higher prices. Thus, the addition of sugars or sweeteners during production, which do not increase the level of sugars in the final product, deforms this objective. However, it may be that the main purpose of introducing the levy on foodstuffs is fiscal. On the other hand, the stimulating function, reducing the consumption of beverages with a high sugar content, serves to effectively mask the true intentions of the legislature, so that the introduction of a new fiscal burden is more easily understood by the public.

Beverages containing sugars that have developed naturally during the production process will not be subject to the Polish levy. In addition, this levy will be imposed in the case of introduction on the domestic market of beverages which are: medicinal products; dietary supplements; food for special medical purposes; infant formulae; follow-on formulae; carbohydrate-electrolyte solutions; goods with milk or milk products on top of the list of ingredients; or excise goods as defined by excise duty. Moreover, this levy is not imposed in the case of beverages placed on the domestic market in which the proportion by weight of fruit, vegetables or fruit and vegetable juice is not less than 20% of the ingredients and the sugar content is less than or equal to 5 g per 100 ml of beverage. In this context, it would seem that the most juices should be higher than 20% of the raw material composition. However, the discussed act is an expression of a compromise between beverage producers and the legislature. Hence, the objectives pursued by the legislature during the development of the tax were distorted.

The very concept of placing a product on the domestic market means the sale of that product by entities liable to pay the levy to the first point where retail sales are made. Retail sales of beverages are made by: the manufacturer; the purchaser of the beverages; the acquirer of the beverages as part of an intra-Community acquisition of goods or the importer of the beverage; or alternatively, where the sale is made by an entity that does both wholesale and retail sales.

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<sup>14</sup> Judgment of the Voivodship Administrative in Poznań of 28 February 2023, ref. no. I SA/ PO 660/22.



Shortly after the levy came into force, the literature pointed out the discrepancies in interpretation that arise under the law governing the levy on foodstuffs. It was noted that the moment at which a sale for the purposes of the aforementioned Act occurs was not specified. Doubts in this respect arise first against the background of the understanding of sale, for example whether it is the transfer of the right to dispose of goods as owner or the actual delivery of goods to the recipient. Second, doubts are raised as to whether an obligation to pay a sugar levy arises when a prepayment for the goods is received (Dahms, 2021, p. 4). However, the jurisprudence has developed the view that the sale of beverages, for the purposes of the application of the levy on foodstuffs, is to be understood as the transfer of ownership of a thing in the form of beverages by the party liable to pay the levy, if the transaction involves an obligation on the part of the purchaser to make a performance that constitutes, directly or indirectly, a form of compensation for the goods delivered<sup>15</sup>. This interpretation of the term of sale for the purpose of imposing the levy has made it possible to solve a practical problem that arises from the liability to pay the levy for the free dispensing of beverages to consumers as part of promotional and marketing campaigns. On many occasions, producers have offered as part of their promotional and sales strategies a certain number of drinks for free when purchasing a certain number of beverages. Given that the levy is paid when a beverage is placed on the market, defined as their sale, the consequence of this standardisation should be that a free transfer will not result in an obligation to pay the levy. However, in the view of both the tax authorities and the administrative courts, the free transfer of beverages subject to the sugar levy as part of a promotional and marketing campaign will not release the obligation to pay the levy. In promotional and marketing campaigns where a consumer is expected to behave in a particular way in order to be given a good (beverage) free of charge there can be no lack of equivalence. In such a situation, this equivalence, which does not always have to be expressed in money, means a specific behaviour of the consumer, for example, the prior purchase of a certain number of drinks. Thus, the above method of transferring beverages as part of a promotional and marketing campaign is considered a special form of sale<sup>16</sup>.

The amount of the sugar levy depends on the content of sugars and food additives in 100 ml of the product. It is based on a fixed rate and a variable rate. The fixed rate is PLN 0.50 (approximately €0.11) for a sugar content equal to or less than 5 g in 100 ml of a beverage or for the content of at least one sweetener in any quantity<sup>17</sup>. A variable rate is imposed when the sugar content exceeds 5 g in 100 ml. It then amounts to PLN 0.05 (just over € 0.01) for each gram of sugar above 5 g in 100 ml of beverage – calculated per litre of

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<sup>15</sup> Judgment of the Supreme Administrative Court of 22 November 2022, ref. no. III FSK 811/22.

<sup>16</sup> Judgment of the Supreme Administrative Court of 22 November 2022, ref. no. III FSK 811/22.

<sup>17</sup> Art. 12f section 1 point 1 of the Public Health Act.

beverage<sup>18</sup>. Drinks that contain added caffeine or taurine are charged at PLN 0.10 (just over €0.02) per litre of drink. In addition, it is stipulated that beverages which are carbohydrate-electrolyte solutions and in which the mass proportion of fruit and/or vegetable juice is no less than 20% of the ingredients and which contain more than 5 g of sugars per 100 ml are subject to a charge of PLN 0.5 per gram per litre of beverage. In addition, the Polish law imposes an upper limit on the levy, which may not exceed PLN 1.2 (approximately EUR 0.27) per litre of beverage. In this context, the fact that the levy rates have not been indexed should be criticized. It is particularly so, since a relatively high average annual inflation rate has been recorded since mid-2021 to date, which in 2021 was 5.1%<sup>19</sup>, and in 2022 - 14.4%.<sup>20</sup> Hence, the lack of valorisation of the levy rates means that the stimulating function cannot quite be properly realised.

#### **4. Is the Polish “sugar tax” an effective fiscal instrument that achieves its objectives?**

Obtaining an answer as to whether or not the levy on foodstuffs achieves the objectives set for it seems possible after analysing data from the Polish Ministry of Finance<sup>21</sup>. These data cover the period from 1 January 2021 when the levy on foodstuffs went into effect until 30 June 2023 and are taken from the declarations submitted by taxpayers on the levy on foodstuffs.

The first thing one realizes is that there has been a 25.39% decrease in the number of taxpayers since the implementation of the levy. Indeed, while the number of taxpayers in the first year of the levy being in force was 705, in 2022 it was 619, and in 2023 it only amounted to 526. While it would be interesting to study this state of affairs, such research is beyond the formal scope of this article. It should be noted, however, that during the *vacatio legis* period of the law introducing the levy, some producers of sweetened beverages announced that due to the additional fiscal burden some of them would have to go out of business. The levy may, have therefore, hastened the decision to close a business that was on the brink of profitability just before the introduction of the levy.

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<sup>18</sup> Art. 12f section 1 point 2 of the Public Health Act.

<sup>19</sup> Communication of the President of Statistics Poland of 14 January 2022 on the average annual index of consumer goods and services in 2021 (Official Journal of the Republic of Poland of 2022, item 31).

<sup>20</sup> Communication of the President of Statistics Poland of 13 January 2023 on the average annual index of consumer goods and services in 2022 (Official Journal of the Republic of Poland of 2023, item 68).

<sup>21</sup> Public information dated 14 September 2023, mark: BMI1.0123.1853.2023. The data were made available based on the Act of 6 September 2001 on access to public information (Official Journal of the Republic of Poland of 2022, item 902).

However, the fall in the number of taxpayers is not matched by a fall in revenue from the foodstuffs levy. Overall, the introduction of the levy has not resulted in a decrease in the number of drinks sold. This applies to beverages with added caffeine or taurine, as well as to other drinks. The total volume of beverages sold in 2021 was 1,328,937,464.284 litres, compared to 1,491,813,479.208 litres in 2022. On the other hand, in global terms, revenue from the levy in 2021 amounted to PLN 1,629.5 billion and in 2022 to PLN 1,644.9 billion. The above data makes us ask a justified question about the point of introducing a levy on foodstuffs. This question is all the more important as the purpose of introducing the fiscal levy in question, as indicated by the legislature, was primarily a non-fiscal purpose consisting in reducing consumer consumption of beverages with high sugar content and beverages containing taurine or caffeine. A deeper analysis of the data brought a few conclusions. First, the introduction of the levy on foodstuffs has not, so far, triggered any non-fiscal effects for consumers of beverages with added caffeine or taurine. Sales in this drinks category have been growing steadily. In 2021, 1,328,937,464 litres were sold, while in 2022 it was 1,491,889,401 litres. By contrast, by June 2023, sales of beverages containing caffeine or taurine had reached 705,509,151 litres, which, compared to the same period in 2022, is a slightly lower figure (718,449,558 litres were sold by the end of June 2022), but significantly higher than in 2021 (577,954,881 litres were sold by the end of June 2021). This means that there are stronger factors influencing buyer behaviour than the fiscal instrument (Miceski, Stojovska, 2014, pp. 252-260). Second, while the levy did not affect the behaviour of individuals who consume beverages with added caffeine or taurine, detailed data shows that it indirectly affected those who consume sweetened beverages. The entry into force of the levy on foodstuffs has put pressure not so much on consumers as on producers who, in order to reduce the fiscal burden, reduce the sugar content of sweetened beverages. Sales of beverages with up to 5 gr of sugars in 100 ml<sup>22</sup> have thus fallen, despite no decrease or even an increase in the sales of beverages with more than 5 grams of sugars in 100 ml. This was the case for both regular beverages and beverages in which the proportion of fruit and/or vegetable juice is no less than 20% of the raw material composition. In the first year of operation of the levy on foodstuffs, 1,445,708,478 litres of beverages with more than 5 grams of sugars per 100 ml were sold, while in 2022 these sales fell to 1,429,686,426 litres. So there was a year-on-year decrease of more than 1%. By 30 June 2023, sales of beverages with this sugar content amounted to 623,003,504 litres with sales in the corresponding period for 2022 amounting to 703,343,220 litres and 647,233,726 litres in 2021. Thus, there was a decrease of more than 3.74% in June 2023 compared to June 2021. However, it should

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<sup>22</sup> In 2021, 683,944,353 liters of drinks with a sugar content of up to 5 gr in 100 ml were sold, while in 2022 it was 707,383,299 liters. By June 2023, meanwhile, 329,186,976 liters had been sold, with sales in the corresponding period in 2021 amounting to 322,080,269 liters and in 2022 - 344,401,163 liters.

be noted that the total number of sugars above 5 grams in 100 ml of beverages sold decreased each year and so in 2021 it was 3,419,789,679 kilograms and in 2022 it was only 13,573,937 kilograms. By June 2023, the total number of sugars above 5 grams in 100 ml of beverages sold was 3,296,990 kilograms, with a corresponding figure in 2022 of 9,877,130 kilograms and in 2021 of 3,368,955,148 kilograms. Similar trends can be seen in the case of beverages in which the share of fruit and/or vegetable juice is no less than 20% of the raw material composition. While 331,783,073 litres of beverages with a share of juices of more than 5 gr of sugar per 100 ml were sold in 2021, the sales in 2022 amounted to 307,580,834 litres. So there was a year-on-year decrease of 7,29 %. By June 2023, the sales had reached 125,773,917 litres against the 2022 sales for the same period: 156,688,887 litres and the 2021 sales: 165,479,711 litres. Compared to June 2021, there was a significant decrease of 23.99% in June 2023. Again, there is a noticeable downward trend in the total amount of sugars above 5 gr in 100 ml of juice drinks sold; while in 2021 it was 10,458,097,928 kilograms, in 2022 it was only 90,670.5 kilograms. By June 2023, the total number of sugars in beverages with a juice content of more than 5 gr of sugars per 100 ml was 40,547 kilograms, with 43,199.8 kilograms for the same period in 2022 and 10,455,234,646 kilograms for the same period in 2021. Polish producers, following the introduction of the levy, significantly reduced the number of sugars in beverages in which the share of fruit and/or vegetable juice was not less than 20% of the raw material composition and they did it quickly. It took them just six months after the levy came into force. The above data may suggest that the non-fiscal purpose of the Act may have been realised. Although the introduction of the levy on foodstuffs did not directly affect the conscious decision of consumers of sweetened beverages, it did have a significant impact on producers, who decided to change the composition of the beverages they sold by reducing the amount of sugar. However, the levy on foodstuffs has been imposed for less than three years. Therefore, it is not yet possible to draw too far-reaching conclusions. However, this analysis shows that there is already a trend towards reducing the sugar content above 5 grams per 100 ml of beverage. However, the often noticeable decrease in the proportion of sugar above 5 grams in 100 ml of a beverage is because some manufacturers are replacing sugar with sweeteners. Consequently, on the one hand, the sugar content of beverages is reduced, which is good for the health of consumers, but on the other hand, there is much controversy around the use of artificial sweeteners and their impact on consumer health (Whitehouse, Boullata, McCauley, 2008, pp. 251-261; Gardener, Elkind, 2019, pp. 549-551).

## 5. Concluding remarks

Conclusions from this article may be drawn on many levels. However, because the levy on foodstuffs has been in force for less than three years it is too early to say whether its introduction has had the intended effect over the long term. Though certain trends are already discernible, these may be reversed after more time has past.

First, the conclusions from the research may relate to the construction of the foodstuffs levy itself. The individual design elements of the levy, against the background of the possible solutions presented in the first part of the article, have been defined correctly. Particularly noteworthy is the introduction of a fixed rate and a variable rate, because, as the analysis of the data shows, it was thanks to this construction that the sugar content of sweetened beverages was reduced. However, it would seem that certain issues require the legislature's intervention. The first of these is the introduction of valorisation mechanisms into the construction of the levy, so that the amount of the levy, and thus its stimulating nature, is not neutralised by inflation. Such a situation has occurred in Poland, where the levy on foodstuffs was introduced at a time of increased inflation. Thus, the increase in the price of sweetened beverages was cushioned by inflation-induced price increases. Hence, perhaps in the first years of the levy, as the data shows, there was no decrease in the consumption of sweetened beverages, and thus it is difficult to speak of whether the stimulating function is being realised. And yet this was the legislature's intention. Second, the data shows that there has been a reduction in the amount of sugars in sweetened beverages sold, which is indirectly in line with the concept of the implementation of the levy. However, this decrease is due not so much to changes in previous consumer habits, as to changes made by the producers themselves in the production of sweetened beverages. On the one hand, one might be tempted to say that this is irrelevant, as consumers may not have changed their eating habits, but as a result of the introduction of the levy they are consuming less sugar, which should have a more positive impact on health statistics in the long term. Such a claim would be entirely justified if it were not for the fact that the sugar added to beverages is often replaced by artificial sweeteners or natural sugars derived from natural juices. Given the above, one should therefore wonder whether the health-promoting purpose of the levy on foodstuffs is actually being realised. Indeed, only a fixed rate is imposed on sweeteners. This results in a kind of tax optimisation on the part of producers by replacing sugars over 5 g per 100 ml with sweeteners. It therefore seems that possible changes should take place in this area so that the amount of sugars exceeding 5 grams affecting the charge is not replaced by sweeteners. In addition, it would seem that the legislature should move in the direction that a larger quantity of sugars should be subject to taxation in general, irrespective of their origin (natural or artificial). To this end, it would also make sense to increase the proportion of fruit, and/or vegetable juice by weight. The current legislation indicates that no charge is levied if the proportion of juice by weight is no less than 20% of the raw material composition and the sugar content is

equal to or less than 5 g per 100 ml of beverage. It should therefore be stated that, following the example of other countries such as Hungary, the proportion of juice by weight should be set at a higher level. However, this may be difficult to achieve, given that the current structure of the levy is a compromise between the legislature and manufacturers of sweetened beverages.

The conclusions resulting from the research may relate to the validity of the question whether the sugar tax is or can be an effective stimulating instrument aimed at changing consumer habits. There is no doubt that the sugar tax, including the levy on foodstuffs, is an effective fiscal instrument. According to data from the Ministry of Finance, revenues from the levy in 2021 amounted to PLN 1.629 billion (including PLN 99.4 million from the levy on beverages containing taurine and caffeine), while in 2022 it was PLN 1.644.9 billion (including PLN 152.3 million from the levy on beverages containing taurine and caffeine)<sup>23</sup>. In the case of the levy on foodstuffs, 96.5% feeds the revenue of the budget of the National Health Fund and is used to advocate health-promoting behaviour as well as to co-fund medicinal products used in the treatment of diabetes and blood glucose strips<sup>24</sup>. Therefore, the levy gives public law entities additional revenue available for the implementation of public tasks. However, the mere introduction of the levy, at least to date, has not had a significant impact on reducing budget revenue or the consumption of taxed beverages. In fact, in the sector of beverages containing taurine or caffeine, those on which only a fixed rate is levied, there has been an increase in revenue and therefore an increase in consumption. Only in the case of those subjects of taxation where the legislature decided to introduce a fixed rate and a variable rate has there been a reduction in the quantities of sugars consumed, with no significant reduction in the quantities of sweetened beverages sold. At the same time, the reduction in sugars is also largely due to its substitution by sweeteners.

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<sup>23</sup> Data provided by the Ministry of Finance as public information no. BMI1.0123.1593.2023 dated 20 July 2023

<sup>24</sup> Information on the use of revenues from the levy on sweetened beverages, caffeine or taurine, dated 13 April 2022, President of the National Health Fund, no. 2022.118014.RABL; Unified information on the use of revenues from the levy on sweetened beverages with added sugars, caffeine or taurine in 2022, dated 7 June 2023, President of the National Health Fund, no. NFZ-DSOZ-SAOS.6611.4.2023.

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