



EY

Building a better
working world

Economic Impact of the Serbian Brewing Sector

| 2015 - 2023

Contents

Short Summary	4
About the Study	6
Purpose of the Study	6
Economic Impact.....	6
Data Collection	6
1 The Serbian Beer Market.....	8
1.1 Global Trends and Impact on the Republic of Serbia	8
1.2 Highlights.....	10
1.3 Production	11
1.4 Exports and Imports	12
1.5 Consumption	14
1.6 Distribution Channels	20
1.7 Responsible Business and Contribution to the Community	21
2 Impact of the Beer Sector on the Serbian Economy	23
3 Government Revenues	24
3.1 Highlights.....	24
3.2 Government Revenues	24
3.3 Excise Duties on Alcoholic Beverages.....	26
4 Added Value	29
4.1 Highlights	29
4.2 Added Value by Sectors	30
5 Employment	31
5.1 Highlights.....	31
5.2 Total Employment Due to Beer Production and Sales	32
5.3 Direct Employment.....	33
5.4 Indirect Employment	33
5.5 Induced Employment	35
6 Procurement by Breweries in the Republic of Serbia.....	37
6.1 Highlights.....	37
6.2 Procurement of Goods and Services	38
6.3 Impact on the Agricultural Sector	38
7 Comparative Analysis of Prices and Excise Duties	40
7.1 Excise Duties and Total Excise Duties	40
7.2 Average On-trade and Off-trade Beer Prices.....	41

Economic Impact of the Serbian Brewing Sector

7.3 Share of Total Excise Duties in Beer Price	43
7.4 Average Monthly Income	44
7.5 Comparison of Rankings	46
7.6 Calculation and Collection of Excise Duties	48
Annex I: Methodology and Scope.....	50
Annex II: Data Sources	51
Annex III: Variables and Estimates	53
Annex IV: Exchange Rates	55

Short Summary

96%

market share

The three largest breweries account for 96% of the beer market

Heineken, Carlsberg, and Apatinska pivara (Molson Coors), are the most significant players in the Serbian brewing sector, with malt producer Sladara Soufflet Serbia also contributing to beer production. There are also several smaller breweries, and dozens of craft breweries operate as well.

5,580,948

hectoliters of beer

More than five million hectoliters of beer were produced

During the year 2023, Heineken, Carlsberg, and Apatinska pivara (Molson Coors) produced a total of 5,580,948 hectoliters of beer, achieving a production growth of 3.74% compared to the year 2022. Beer production is currently at its highest level since the year 2015.

1,620,223

hectoliters of beer

An annual beer export growth of 8.39% was achieved

The total beer export in 2023 was 1,620,223 hectoliters, representing a growth of 8.39% compared to the previous year. In terms of the quantity of beer exported, the most beer was destined for the markets of Bosnia and Herzegovina, Montenegro, Hungary, Bulgaria, and Croatia.

333,689

hectoliters of beer

An annual decline in beer imports of 32.76% was recorded

The total beer import in 2023 was 334,689 hectoliters, representing a decrease of 32.76% compared to the previous year. Regarding the quantity of beer imported, the most beer was imported from Bosnia and Herzegovina, Hungary, the Czech Republic, Slovenia, and Poland.

4,318,173

hectoliters of beer

Beer consumption is lower than in previous years

Compared to 2021 and 2022, there was a decrease in beer consumption of 2.21% and 5.04%, respectively, which was largely conditioned by the general increase in prices, a decline in the purchasing power of the population, and a significantly shorter beer consumption season.

65.2 l

consumption per capita

Beer consumption per capita was 65.2 liters

Beer consumption per capita was at the level of 65.2 liters in 2023. Consumption is almost identical to the average values in European Union countries, and in the last year, it recorded a decline due to reduced beer consumption in the domestic market.

Short Summary (Continued)

16,270
jobs

The beer sector creates a significant number of jobs in Serbia

In 2023, the beer sector generated 16,270 jobs - 1,465 directly in breweries, 2,288 in the supply sector, 10,229 in the hospitality sector, and 2,288 in the retail sector. For every job in the beer sector, 10.11 jobs were created in related sectors.

202
million euros

The added value exceeded the amount of 200 million euros

The total added value generated by the production and sale of beer (beer and related sectors) increased by 2.8% compared to the previous year. The total added value created in the period from 2015 to 2023 amounts to approximately 1.6 billion euros.

314
million euros

Growth in government revenues from beer

It is estimated that the beer sector contributed more than 314 million euros to the budget of Serbia. The most significant government revenues were generated from VAT and excise taxes, followed by contributions for pension, social, and health insurance, and other taxes, fees, and charges.

259
million euros

Record value of procurements in the beer sector

The three largest beer companies carried out procurements with a total value of 259.4 million euros, of which 190.3 million euros or 73.4% was procured from local suppliers. The most significant share in procurement includes materials for bottling and packaging and agricultural products.

60
million euros

Significant contribution of the beer sector to agriculture

The total value of procurement costs for agricultural products in 2023 was 61.7 million euros, of which 45.9 million euros or 74.4% was spent in the Republic of Serbia. The beer sector also generated just over 400 jobs in the agriculture sector.

28,55
dinars per liter

An excise increase of 8% and an absolute increase of 2.11 dinars

At the end of 2023, the excise tax on beer was 28.55 dinars per liter. The excise tax on beer is higher than that on low-alcohol beverages, and the analysis indicates that it is also higher than the excise tax on spirits, which constitutes only 88% of the beer excise tax.

About the Study

Purpose of the Study

This study has been commissioned by the Serbian Brewing Association with the aim of assessing the economic impact of the brewing sector in the Republic of Serbia for the period from 2015 to 2023. The Study includes data published in previous Studies, as well as data updates for 2021, 2022, and 2023 in accordance with data collected from member breweries and publicly available data.

Economic Impact

Economic impact of the Serbian brewing sector can be observed as three different impacts:

- ▶ The direct impact represents the direct economic effect generated by the operations of companies that produce beer or malt as one of the main components of beer.
- ▶ The indirect impact represents the effect that beer producers and beer production have on their suppliers. The Study specifically highlights the importance of the following industries: supply of raw materials, filling and bottling; transport and storage; utility services (electricity, gas, and water); media, marketing, and communication; equipment, production, and other industrial activities; as well as many other services/activities such as business, social, social, and personal services.
- ▶ The induced impact represents the economic effect generated by the sale of beer in off-trade and on-trade distribution channels. Effects generated by the sale of other beverages (coffee, tea, juices, alcoholic drinks, wines, etc.) are not relevant for this Study.

EY considered the fact that malt is one of the basic raw materials in beer production to avoid the multiplication of effects and results. We measured the economic impacts of the beer sector in three key areas - employment, added value, and state revenues, where the following applies:

- ▶ Employment quantifies persons employed or jobs created due to production and sale of beer.
- ▶ Added value represents the increase in value of a product at each stage of its production, excluding initial costs. Therefore, added value is the difference between the value produced and the value of purchased inputs (goods and services). Added value can also be defined as the sum of improvements that are added to a particular product or service by a company before the product or service is offered to end customers.
- ▶ Government revenues include all revenues collected from taxes, fees, fines, licenses, and charges that companies, directly or indirectly associated with the production and sale of beer, must pay to carry out the beer production process and other processes related to the production and sale of beer. Therefore, this study shows state revenue from excise duty, value-added tax (VAT), corporate tax, payroll taxes and social security contributions, as well as profit tax and environmental charges.

Data Collection

Most of the data used within the Study was obtained through questionnaires collected from the three largest breweries in Serbia: Carlsberg, Heineken and Apatinska pivara (Molson Coors). In cases where certain data were not available, we used publicly available sources such as the Statistical Office of the Republic of Serbia (hereinafter: RZS) and The Brewers of Europe association. Some data for earlier years were collected through questionnaires from Sladara Soufflet Srbija d.o.o. (hereinafter: Sladara Soufflet), and parameters provided by the Center for Advanced Economic Studies (*serb. Centar za visoke ekonomske studije*; hereinafter: CEVES) were also used. Given that the Study was mostly conducted in the first half of 2024, a certain set of data related to aggregate data of economic activity of individual economic segments in the

Economic Impact of the Serbian Brewing Sector

Republic of Serbia, as of the end of 2023, is not available, and as explained in certain data groups throughout the Study, forecasting functions based on the available data set were used. When conducting further analysis and presenting data from this Study, attention should be paid to the notes if projections were used for the time series, which are presented in Annexes I, II, III.

1 The Serbian Beer Market

1.1 Global Trends and Impact on the Republic of Serbia

The beer sector is an integral part of the industry, retail, hospitality and tourism, and as such, represents a key link that connects these areas with customers, creating multiple benefits for beer producers and consumers, all sectors associated with beer production, the state, and the entire social community. On one hand, beer production requires the use of wide range of goods and services of different origins and characteristics (countries, industries, quality, etc.). On the other hand, distribution and sales of beer presuppose the existence of a network of distributors, servers and sellers who, along with other operations and beverage offering, serve and sell beer to end consumers. Therefore, the impact of the beer sector on the supply sector and on-trade and off-trade sectors is enormous. Therefore, the impact of the beer sector on the supply sector and on-trade and off-trade sectors is enormous, but to the same extent, these sectors reciprocate to the beer sector, making it clear that trends and variations in the beer, or related sectors, lead to significant changes in beer production as well as in the beer market itself.

First and foremost, we must place consumers at the center of interest of the beer sector, whose daily lives and habits have completely transformed in recent years, significantly contributed to by the global coronavirus pandemic, but also by the current general rise in prices and an increased spending aversion. Consumer habits were changing rapidly even before the crisis, however, the crisis accelerated these processes and directed producers, sellers, and restaurateurs to find new ways to reach their consumers. A global EY survey conducted in November 2023 showed that as many as 47% of consumers plan to reduce their spending on alcoholic beverages, so we can conclude that there is a negative trend in consumption of beer and similar drinks, and that the beer sector may face certain difficulties in the coming period. Of course, a large part of consumers will seek refuge in more affordable beer brands, and a significant portion of consumers will spend the same, or even more, amount on alcoholic beverages, which can largely cushion the previously described negative trend. Bearing this in mind, forecasts for the further development of the beer sector are optimistic, provided that movements in terms of consumer needs and habits should be continuously monitored and analyzed.

When it comes to beer production, numerous trends have also emerged that are transforming the beer sector. Foremost is an increasing commitment to sustainable development and enhancing sustainability in beer production, which has resulted in changes to packaging and bottling materials, improved wastewater treatment, and the use of materials and raw materials that are not harmful to the environment. Breweries in Serbia have long taken steps to strengthen recycling activities and build water treatment plants, and together with other socially responsible projects, they have demonstrated their aspirations towards achieving sustainability goals. It is also important to note that the structure of employment in the beer sector and related sectors is changing, contributed to by the globally present tendency to implement strategies of diversity, equality, and inclusivity in the beer sector, which will undoubtedly affect the structure of employment in the beer sector in the Republic of Serbia. Furthermore, we can expect continued investment in the development of innovative solutions that will improve various segments of beer production and sales, from production facilities, through packaging technologies and materials, to methods of serving and selling beer.

The past three years have brought new growth in beer production in the Republic of Serbia, accompanied by an increase in exports and a decrease in local consumption, which has allowed the total value of production to exceed 238 million euros, and beer consumption per capita to be at the level of 65 liters in 2023. Consequently, the beer sector has created over 16,000 jobs, both in the beer industry and in related supply, hospitality, and retail sectors. Additionally, total government revenues from excise taxes, VAT, social contributions, and other taxes, fees, and charges have significantly increased, and the role of the beer sector as part of the manufacturing industry in creating the gross domestic product has gained further importance. It is also important to note that beer companies have achieved all these successes under conditions of rising beer excise duties, decreasing beer demand, and general price increases, while

Economic Impact of the Serbian Brewing Sector

respecting all decisions of the competent institutions and continuously contributing to the economy and social community.

A detailed description of the indicators of the economic impact of the beer sector in the Republic of Serbia is presented in the continuation of the Study.

Economic Impact of the Serbian Brewing Sector

1.2 Highlights

During the period from 2015 to 2023, the Compound Annual Growth Rate (CAGR) of the beer sector, expressed through beer production, was 0.73%, which was reflected in the growth of all other categories - import, export, consumption and beer production. However, if we were to compare 2023 with 2019, the last year before the COVID-19 pandemic, the CAGR of the beer sector expressed through beer production is 0.13%, indicating a significantly slower growth over the past five years, but also indicating a slight recovery of the beer sector and a return to pre-pandemic production levels.

Beer consumption per capita in the Republic of Serbia in 2023 was 65.2 liters and, as such, it is within the range of the ten-year average. In 2022, beer consumption per capita was above the average values, with this growth caused by a significant decrease in the population during the year and an increase in beer imports and consumption of locally produced beer. Notably, in 2023, both beer imports and consumption of locally produced beer decreased.

Key figures for the beer sector from 2015 to 2023 can be followed in the Table 1.1 that shows total beer production, then imports and exports of beer, as well as total beer consumption, beer consumption per capita, and the value of total production. Also, Table 1.1 includes the annual change in key indicators (in percentages).

Table 0.1 Key figures for the beer sector in the Republic of Serbia from 2015 to 2023

Key figures (in 000 hl)	2015	2016	2017	2018	2019	2020	2021	2022	2023
Production	5,227	5,226	5,334	5,498	5,545	5,147	5,270	5,380	5,581
Change	5.1%	-0.01%	2.1%	3.1%	0.9%	-7.2%	2.4%	2.1%	3.7%
Export	1,218	1,265	1,283	1,426	1,525	1,372	1,450	1,495	1,620
Change	3.1%	3.9%	0.4%	10.6%	7.5%	-10.0%	5.7%	3.1%	8.4%
Import	224	220	377	436	398	384	435	496	334
Change	12.8%	9.6%	57.1%	15.8%	-8.8%	-3.6%	13.3%	14.1%	-32.8%
Consumption	4,263	4,292	4,551	4,670	4,558	4,305	4,416	4,547	4,318
Change	6.8%	1.3%	5.6%	2.6%	-2.4%	-5.6%	2.6%	3.0%	-5.0%
Consumption per capita (l)	60.09	60.81	64.14	66.17	64.81	62.15	64.61	68.23	65.20
Change	7.3%	1.8%	6.1%	3.2%	-1.9%	-4.9%	3.6%	5.6%	-4.4%
Production value (million €)	215	213	231	249	244	235	200	225	238
Change	3.8%	-1.0%	8.5%	8.0%	-2.3%	-3.6%	-14.8%	12.5%	6.0%

Source: RZS, Questionnaires

It is important to mention that the data on beer consumption per capita is based on the total population estimation done in the mid-year and published by RZS.

1.3 Production

The Serbian brewing sector is led by three major players:

- ▶ Heineken Serbia d.o.o. Zaječar, member of Heineken International BV, hereinafter „Heineken“;
- ▶ Carlsberg Serbia d.o.o. Čelarevo, member of Baltic Beverages Holding AB, hereinafter “Carlsberg”;
- ▶ Apatinska pivara Apatin d.o.o. Apatin, Molson Coors SER d.o.o. Apatin, hereinafter „Apatinska pivara (Molson Coors)“.

These three companies represent 96% of the market share and operate through four breweries located in Novi Sad and Zaječar (Heineken), Čelarevo (Carlsberg) and Apatin (Molson Coors).

In the Republic of Serbia, there are also other, smaller breweries, as well as several dozen craft breweries operating in the Serbian market, which are mostly gathered around the Association of Small Independent Breweries of Serbia.

The beer production is also influenced by Sladara Soufflet Serbia d.o.o., another member of the Serbian Brewing Association, although its impact on the economy is not shown directly in the Study, but is taken into account in the segment of indirect impact that deals with the analysis of the effects of beer producers and beer production on suppliers.

Within the beer sector, many different types of beer are produced, with the majority of beer brands being produced by Heineken, Calsberg and Apatinska pivara (Molson Coors). Alongside the production and sale of beer, these companies also perform other beer-related activities, such as the production of sweet citrus beverages (e.g., fruit ciders), distribution, wholesale, and similar. Heineken, Carlsberg and Apatinska pivara (Molson Coors) produce 40 different brands of beer and ciders, and a detailed structure of the brands by companies is provided in Table 1.2.

Table 0.2 Members of the Serbian Brewing Association, number of breweries, and total number of brands (beer and ciders)

Brewery	Number of breweries	Number of brands
Apatinska pivara (Molson Coors)	1	12
Carlsberg	1	17
Heineken	2	11

Source: The Serbian Brewing Association, websites of the Association members

Beer production exhibited growth until 2020 and COVID-19 pandemic when total beer production amounted to 5,146,783 hl. This is 7.9% less than in 2019 and 1.53% less than in 2015, making the production from 2020 the lowest in the observed period. The levels of beer production in 2020 were almost the same as in 2010, which clearly shows how hard the pandemic hit beer sector in Serbia.

In the three years that followed the pandemic, the beer sector in Serbia started to recover with 2.39%, 2.08% and 3.74% growth rates in 2021, 2022 and 2023, respectively. The beer production in these years has reached its levels before the pandemic, and it amounted to 5,279,037 hl, 5,379,797 hl and 5,580,948 hl, respectively. The total beer production in 2023 is the highest in the observed period is a result of major efforts invested in order to reverse the negative effects pandemic left on beer production and consumption in Serbia.

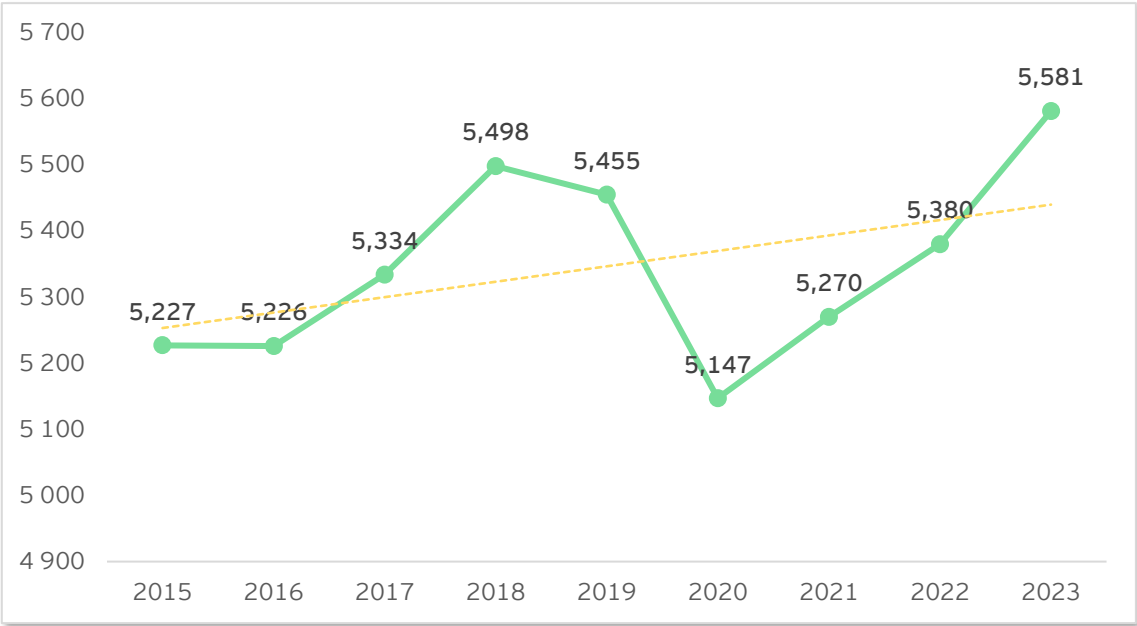


Figure 0.1 Beer production in Serbia (in 000 hl) (Source: Questionnaires)

Following Figure 1.1, which shows the total beer production in Serbia by year for the period from 2015 to 2023, below is also a graphical representation of the value of total production minus VAT and excise taxes, expressed in thousands of euros.

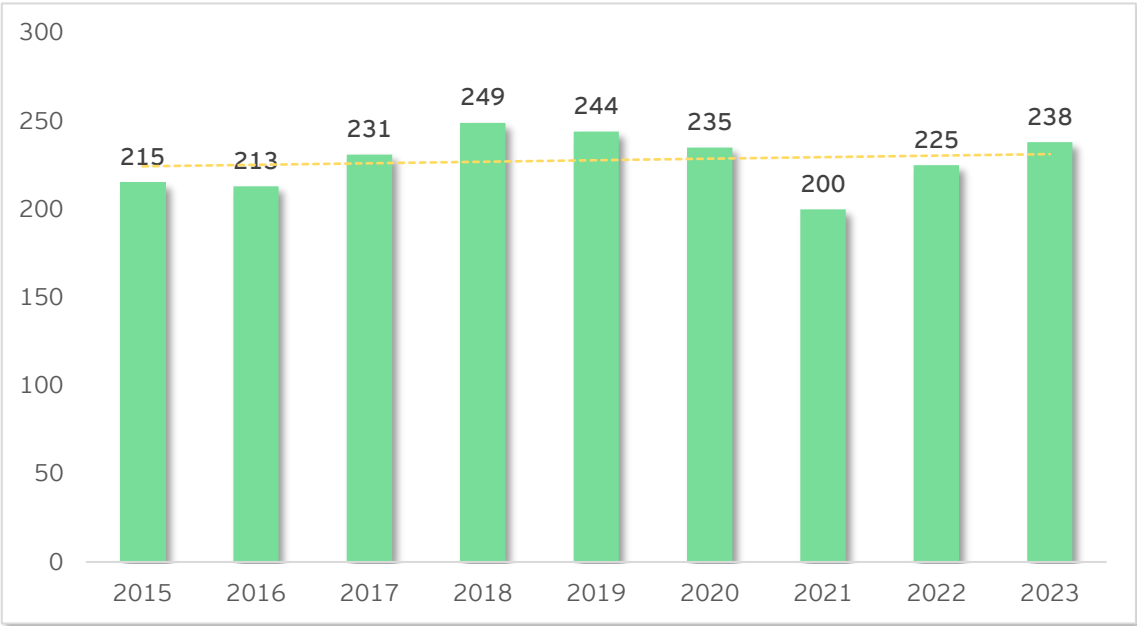


Figure 0.2 Beer production (in 000 €) in Serbia without VAT and excise (Source: Questionnaires, EY calculations)

The value of production (expressed in euros) increased by 10.93% compared to 2015, and it depends on the total beer production, the producer's price for beer, and the general rise in prices of goods and services on a global level.

1.4 Exports and Imports

Data on beer imports and exports are based on information collected from breweries, the Customs Administration, and the RZS.

Economic Impact of the Serbian Brewing Sector

Exports

In 2023, the total beer export amounted to 1,620,000 hectoliters, representing an increase of 8.39% compared to the previous year. The trend of increasing beer exports was also present during 2021 and 2022 when there was a significant increase in exports and a mitigation of the negative trend that marked the year 2020. Looking cumulatively, in the period from 2015 to 2023, 12,672,262 hectoliters of beer were exported, with the total export in 2023 being 31.71% higher than the total export achieved in 2015. The exports of the three largest beer companies - Heineken, Carlsberg and Apatinska pivara (Molson Coors), constitute almost the entire beer exports from the republic of Serbia.

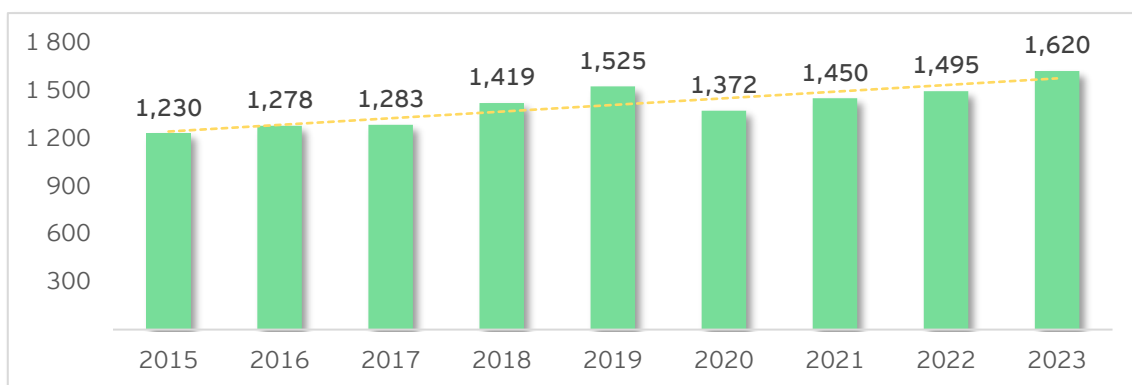


Figure 0.3 Total beer exports through the years (in 000 hl) (Source: RZS)

Looking at the quantity of exported beer, in 2023, the most beer was destined for the markets of Bosnia and Herzegovina, Montenegro, Hungary, Bulgaria, and Croatia, followed by Albania, Macedonia, Greece, Italy, and Slovenia. It is also important to note that the five most significant markets account for more than 95% of the total beer exports, and that the value of exports in 2023 exceeded the amount of 85 million euros.

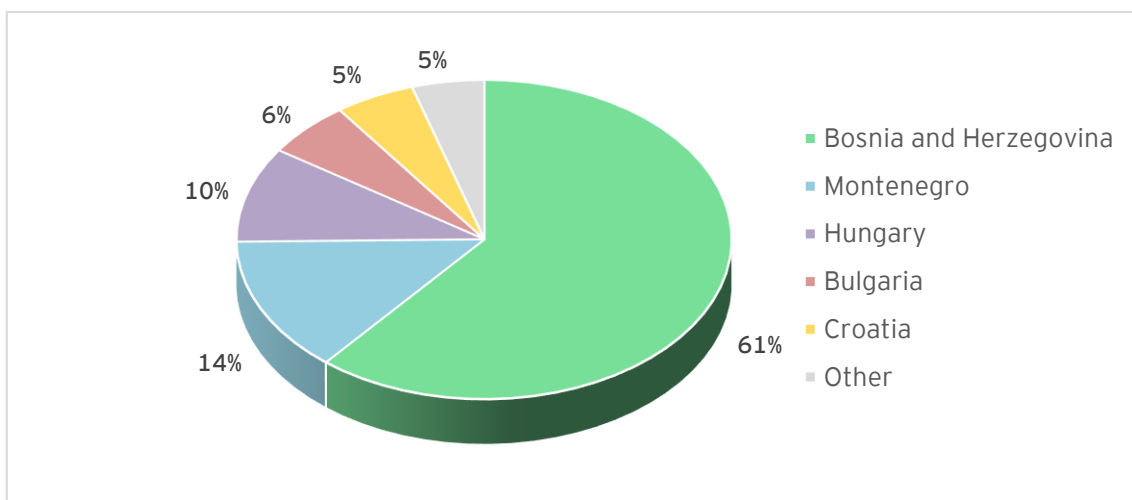


Figure 0.4 Share of exports by country in 2023 (Source: Customs Administration)

Imports

During 2023, 333,689 hectoliters of beer were imported into the Republic of Serbia, representing a decrease of 32.76% compared to 2022. If we compare these values with the beginning of the observed period, namely 2015, we can conclude that beer imports have increased, but their value and quantity fluctuate from year to year and do not show a clear trend as is the case with beer exports. Looking cumulatively, in the period from 2015 to 2023, 3,318,185 hectoliters of beer were imported, and in the last year alone, 2023, the value of imports was higher than 22 million euros.

Economic Impact of the Serbian Brewing Sector

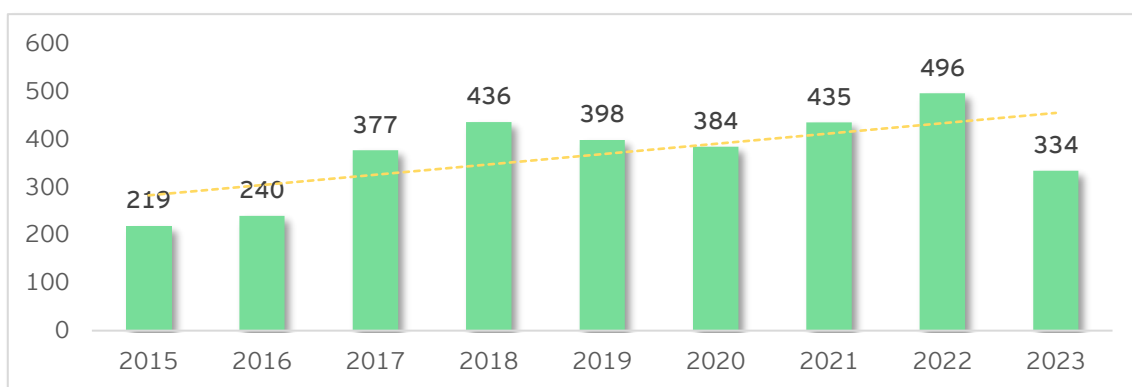


Figure 0.5 Total beer imports through the years (in 000 hl) (Source: RZS)

Looking at the quantity of imported beer, during 2023 the most beer was imported from Bosnia and Herzegovina, Hungary, the Czech Republic, Slovenia, and Poland, followed by Germany, Greece, Croatia, the Netherlands, and France. It is also important to note that more than 74% of the total imported beer comes from the five most significant markets.

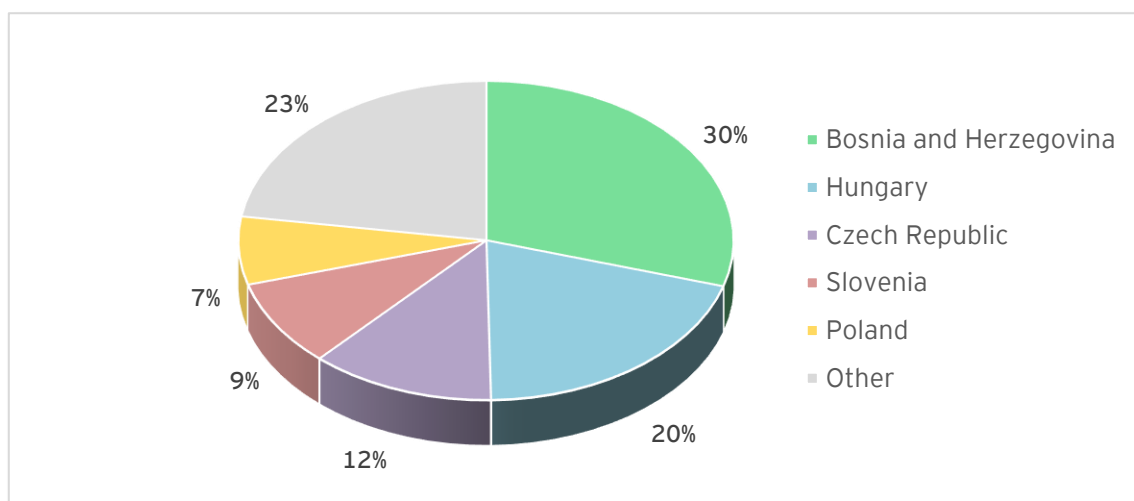


Figure 0.6 Share of imports by country in 2023 (Source: Customs Administration)

1.5 Consumption

Beer consumption represents the sum of the consumption of beer produced in Serbia and the consumption of imported beer. Beer produced in the Republic of Serbia includes beer produced by the three largest beer companies - Heineken, Carlsberg and Apatinska pivara (Molson Coors), which was sold to domestic customers, i.e., on the domestic market.

Beer consumption in the Republic of Serbia in 2023 amounted to approximately 4,318,173 hectoliters. Compared to 2021 and 2022, there was a decrease in consumption of 2.21% and 5.04%, respectively, for the mentioned years, which was largely due to the general rise in prices, a decline in the purchasing power of the population, and the adverse impact of seasonal events, namely a significantly shorter beer consumption season.

Comparing beer consumption in 2023 with earlier years, we observe that it was higher in 2023 than in 2020, but it is still at significantly lower levels than in the period from 2017 to 2019, and it is now at the level of consumption from 2016. Therefore, it is clear that the beer market is striving to stabilize and maintain consumption at an appropriate level, while simultaneously dealing with numerous challenges that complicate operations in the beer industry.

Economic Impact of the Serbian Brewing Sector

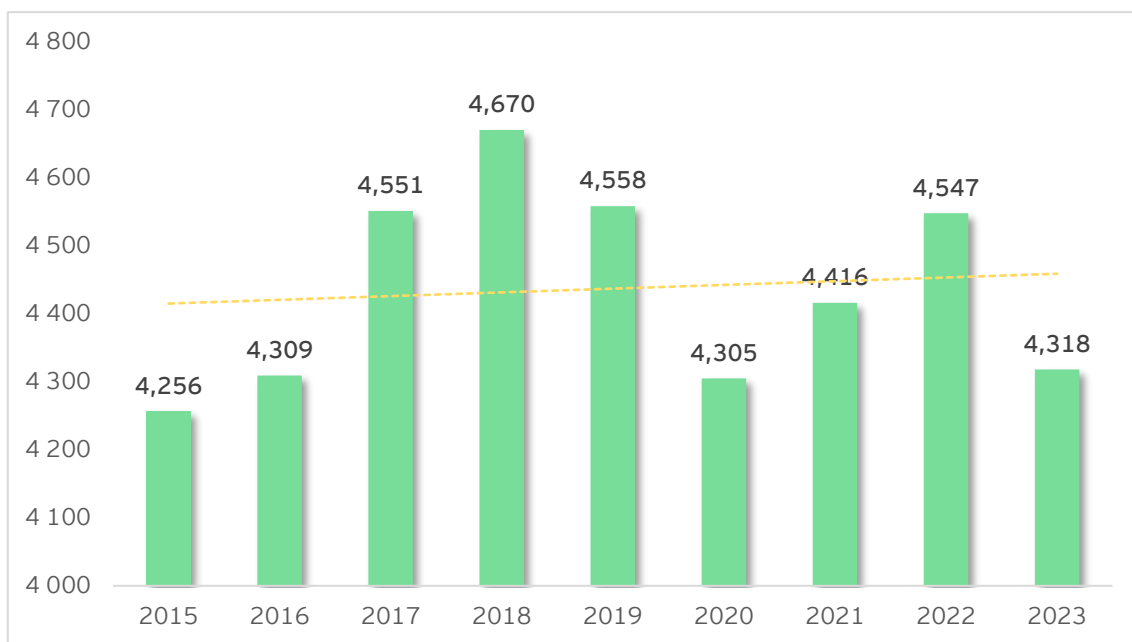


Figure 0.7 Beer consumption in the Republic of Serbia in 2023 (in 000 hl) (Source: Questionnaires, RZS)

The consumption of locally produced beer in the Republic of Serbia in 2023 amounted to 3,984,484 hectoliters, representing a decrease of 1.64% compared to the previous year. Although 2021 and 2022 brought a slight recovery after the coronavirus pandemic, the trend of increasing consumption of locally produced beer was again interrupted in 2023, and this consumption was below the average values for the observed period.

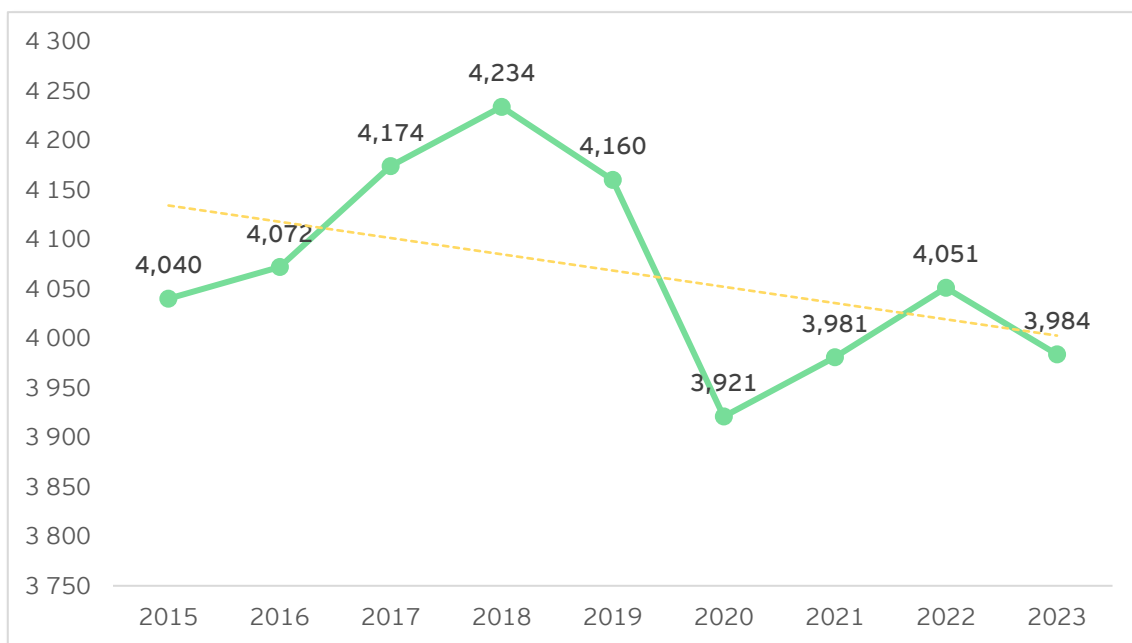


Figure 0.8 Consumption of locally produced beer in the Republic of Serbia (in 000 hl) (Source: Surveys)

As can be concluded based on figures 1.7 and 1.8, the total beer consumption (consumption of locally produced beer and imported beer) and the consumption of locally produced beer in the Republic of Serbia were in constant increase during the period from 2015 to 2018. This was followed by two years (2019-2020) of decline and two years (2021-2022) of consumption growth, only for a negative trend to be recorded again in 2023, due to the aforementioned reasons.

Economic Impact of the Serbian Brewing Sector

Beer consumption per capita in the Republic of Serbia in 2023 was 65.2 liters. Compared to European countries, beer consumption per capita in our country is almost equal to the annual average (65.3 liters per capita). It is important to note that the term "European countries" includes the countries of the European Union, Switzerland, Norway, and the United Kingdom.

Table 1.3 shows the beer consumption per capita in the Republic of Serbia and European countries for the period 2021-2023, ranked according to consumption in 2023. Data on beer consumption per capita in European countries for 2021 and 2022 are based on statistics from the report of the Brewers of Europe, while data on beer consumption per capita in 2023 are projections based on consumption in the period from 2015 to 2022. Data on beer consumption per capita in the Republic of Serbia are based on information provided by the three largest beer companies and the RZS.

Table 0.3 Beer consumption per capita in the Republic of Serbia and European countries in 2023 (in liters)

Country	Consumption per capita (litres) 2021	Consumption per capita (litres) 2022	Consumption per capita (litres) 2023
 Czech Republic	129	136	132
 Austria	101	102	101
 Poland	92	93	94
 Germany	89	92	89
 Romania	87	83	86
 Croatia	77	79	82
 Slovenia	78	76	79
 Bulgaria	77	80	78
 Estonia	-	79	76
 Hungary	68	68	70
 The Great Britain	68	68	68
 Finland	71	64	66
 The Netherlands	62	70	65
 Ireland	61	71	65
 Serbia	65	68	65
 Slovakia	60	59	63
 Denmark	65	-	62
 Sweden	57	57	59
 Spain	50	58	55
 Switzerland	51	54	52
 Portugal	48	53	51
 Cyprus	47	51	50

Economic Impact of the Serbian Brewing Sector

Country	Consumption per capita (litres) 2021	Consumption per capita (litres) 2022	Consumption per capita (litres) 2023
 Malta	41	50	48
 Luxembourg	50	50	47
 Italy	35	38	37
 France	33	33	34
 Greece	32	35	33
 Latvia	-	-	81
 Lithuania	-	-	78
 Belgium	-	-	60
 Norway	-	-	55

Source: Questionnaires, European Beer Trends (Statistics Report, 2023 Edition)

Beer consumption per capita in the Republic of Serbia from 2015 to 2023 varies, but generally shows an upward trend and follows the average consumption in European countries. During this period, consumption per capita increased by just over 5 liters, with a noticeable decline in 2020, most significantly influenced by the coronavirus pandemic. Also noteworthy is the year 2022, which saw a substantial increase in beer consumption per capita, due both to an increase in total beer consumption and a significant decrease in the population.

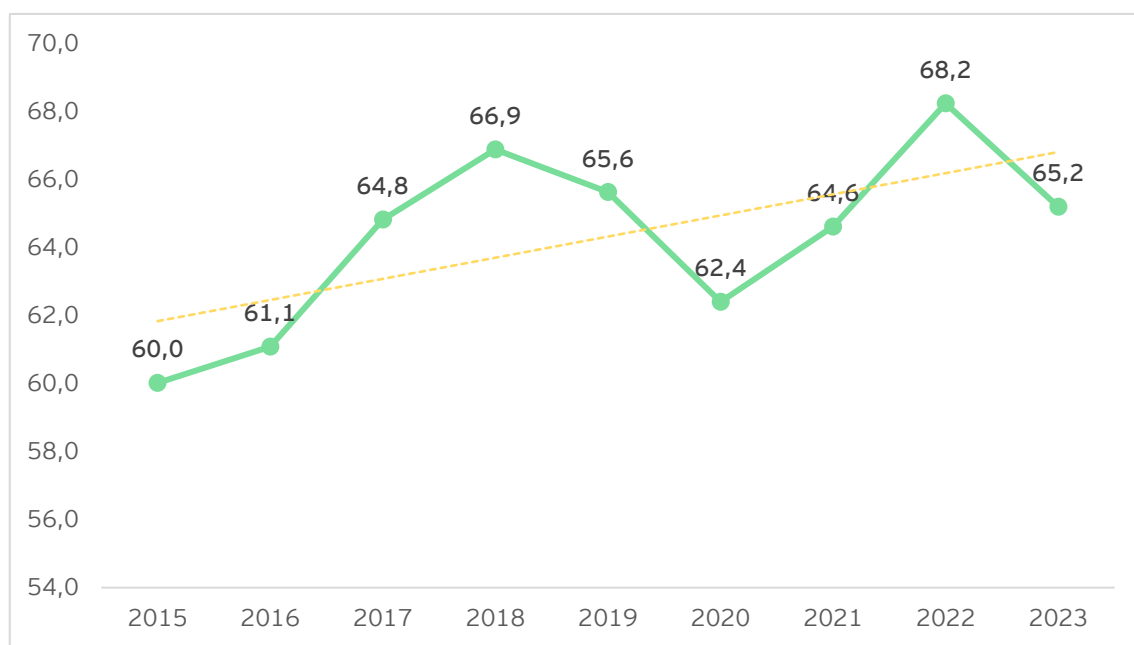
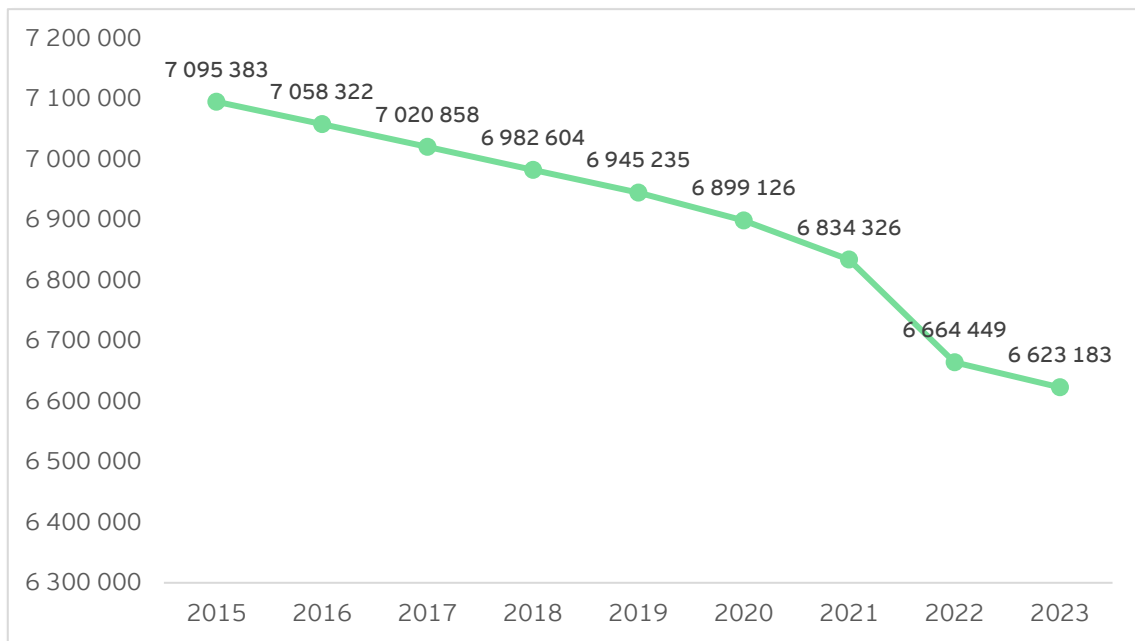


Figure 0.9 Beer consumption per capita in the Republic of Serbia (liters) (Source: Questionnaires, RZS)

Given that beer consumption per capita directly depends on the population size, Figure 1.10 presents an estimate of the population in the Republic of Serbia at mid-year for the period from 2015 to 2023, in order to more clearly indicate their connection and the impact of changes in population size on the previously explained indicator of consumption.

Economic Impact of the Serbian Brewing Sector



Graph 0.10 Mid-year population estimates in Serbia from 2015 to 2023 (Source: RZS)

It is noticeable that the population in the Republic of Serbia has decreased during the observed period, that is, it is in constant decline. On the other hand, beer consumption per capita is moderately increasing and is influenced by the decrease in population size, but also by changes in the total beer consumption in the Republic of Serbia. The following chart shows the relationship between the population size and the total beer consumption in the Republic of Serbia.

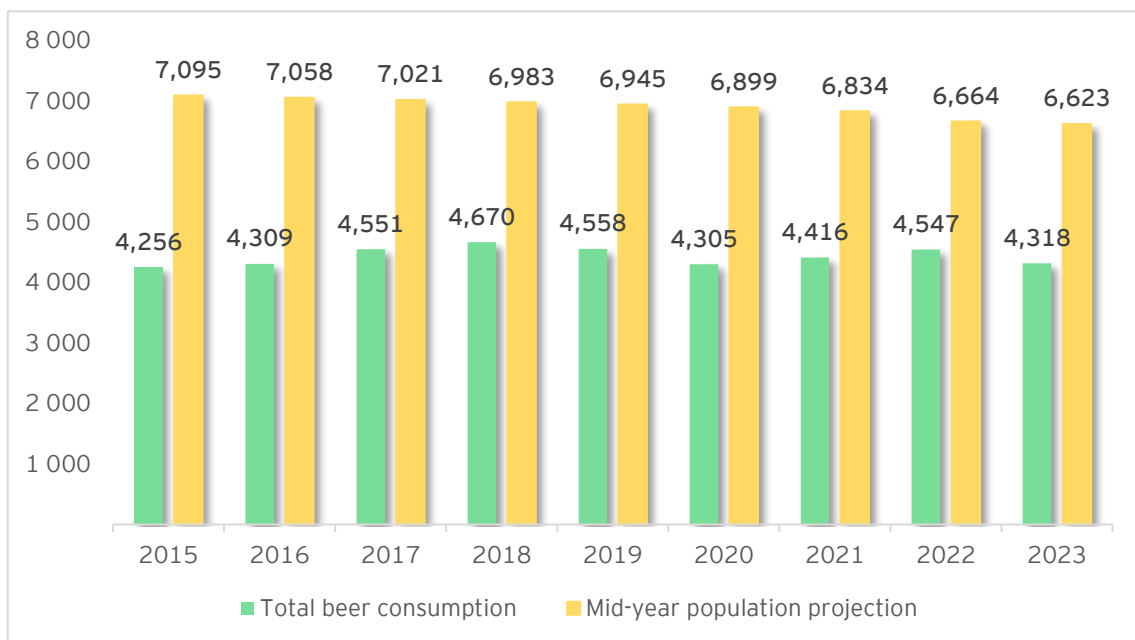


Figure 0.11 Beer consumption (in 000 hl) compared to the population size (in 000) (Source: Questionnaires, RZS)

Relying on Figure 1.11, we can conclude that beer consumption in 2021 and 2022 experienced growth despite the decline in population size during this period, which was the first signal of a slight recovery in the market and an increase in beer production and consumption. However, in 2023 there was a more significant reduction in beer consumption.

Economic Impact of the Serbian Brewing Sector

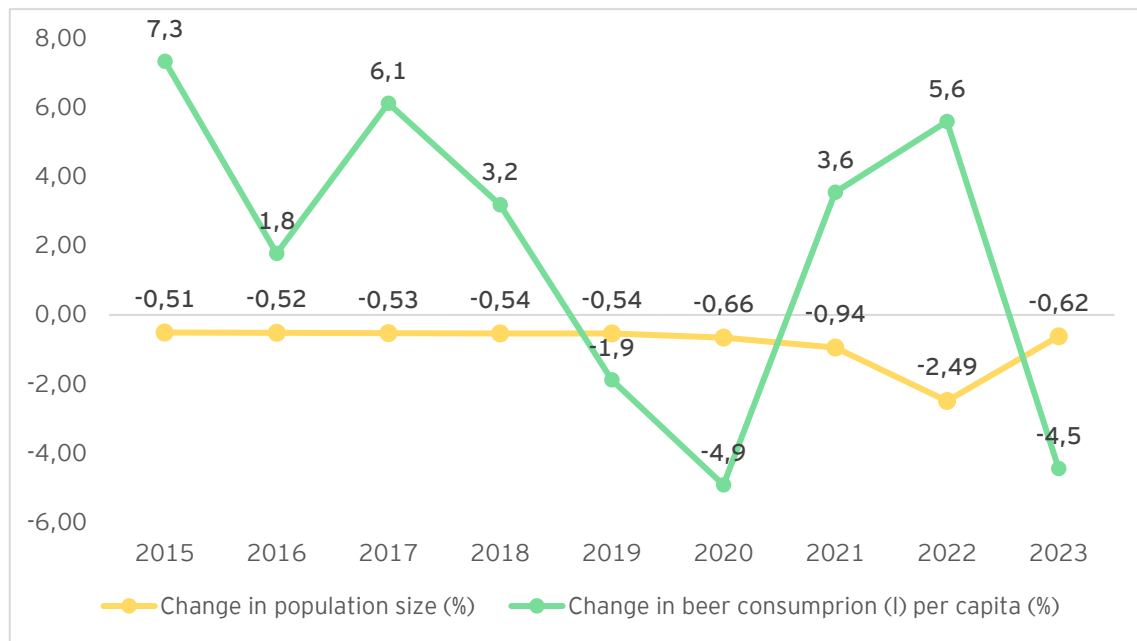


Figure 0.12 Change in beer consumption (%) compared to the change in population (%) in Serbia (Source: Questionnaires, RZS)

Graph 1.12 shows the percentage changes in population size and beer consumption per capita during the period from 2015 to 2023. We can observe that beer consumption per capita fluctuates, with a continuous positive growth recorded from 2015 to 2018 with a variable growth rate, followed by a noticeable decline in 2019 and 2020, years marked by the coronavirus pandemic, and then beer consumption per capita again entered a phase of growth during the period from 2021 to 2022. The unfavorable market situation, a significantly shorter beer consumption season, and an increase in beer prices, which most heavily impacted end consumers, led to a decline in beer consumption per capita in 2023 at a rate that is approximately equal to the negative rate recorded during 2020, the year with the highest drop in beer consumption.

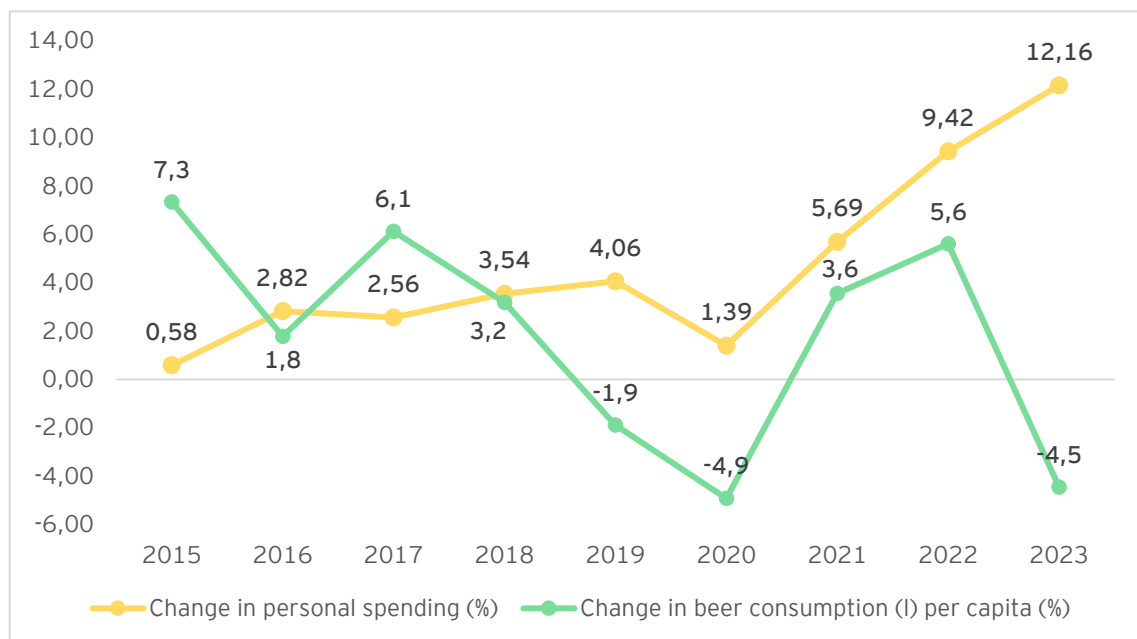


Figure 0.13 Change in beer consumption per capita (%) compared to the change in personal spending (%) (Source: Questionnaires, RZS)

Economic Impact of the Serbian Brewing Sector

Looking at the Figure 1.13, we can conclude that personal consumption has recorded stable growth since 2015, with the exception of 2020, which was characteristic in the context of consumption for the reasons already mentioned. On the other hand, beer consumption per capita grew more slowly compared to the growth of personal consumption in the period from 2018 to 2023, and during 2019 and 2020, even negative growth rates were achieved, i.e., there was a decline in beer consumption. This trend was repeated in 2023 and reflects numerous factors (see the previous paragraph) and may be a signal of changing consumer habits in conditions of general price increases.

It is important to note that the data on personal consumption for 2020 represent an estimate based on the trends of personal consumption in previous years, as they have not been publicly released by the RZS.

1.6 Distribution Channels

Beer sales can be conducted through two sales channels: on-trade and off-trade. The on-trade sector or sales channel represents beer sales in bars, restaurants, nightclubs, and hotels, i.e., it encompasses sales that take place in the hospitality (HoReCa) sector. The off-trade sector or sales channel represents beer sales in retail outlets - stores, supermarkets, discount stores, and similar.

The division into on-trade and off-trade sales channels is characteristic of the alcoholic and non-alcoholic beverage industry, and the same approach is applied by the Brewers of Europe.

In the Republic of Serbia, beer purchases are most commonly made in markets and other retail outlets, i.e., in the off-trade channel, while the remaining beer purchases are made in hospitality establishments, that is, in the on-trade sales channel. A detailed presentation of beer sales in on-trade and off-trade sales channels is given in Figure 1.14.

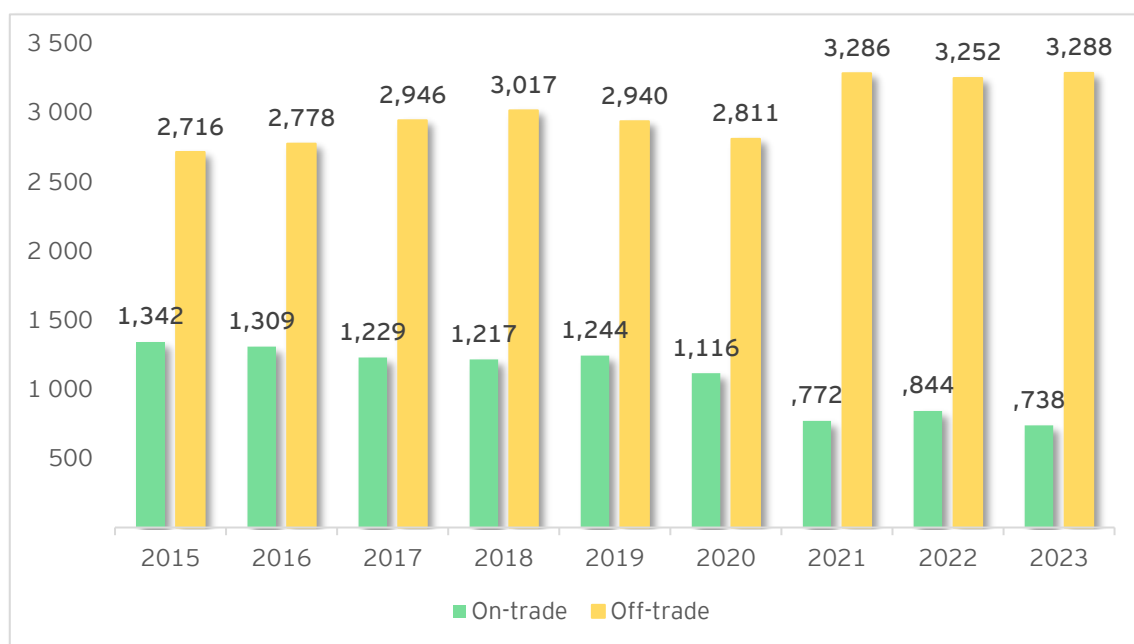


Figure 0.14 Quantity of locally produced beer sold in on-trade and off-trade sectors (in 000 hl)
(Source: Questionnaires)

Beer sales in the on-trade channel show a negative trend in the period from 2015 to 2023, with a moderate increase in sales in 2022, followed by a decline in sales the following year. On the other hand, beer sales in the off-trade channel generally show an upward trend in terms of the quantity of beer sold, with the exception of the period from 2019 to 2020 when there was a decline in all beer consumption indicators. Regarding the value of beer sold, both on-trade and off-trade channels show long-term growth, but the value of beer sold in the off-trade channel is increasing at higher rates compared to sales in the on-trade channel. It is known that the price of beer in the on-trade channel is significantly higher than the price of beer in the

Economic Impact of the Serbian Brewing Sector

off-trade channel, so this difference largely compensates for the difference in the quantity of beer sold in these channels. Also noteworthy is the year 2021, which saw a significant decline in beer sales in the on-trade channel, and thus a greater decline in sales value.

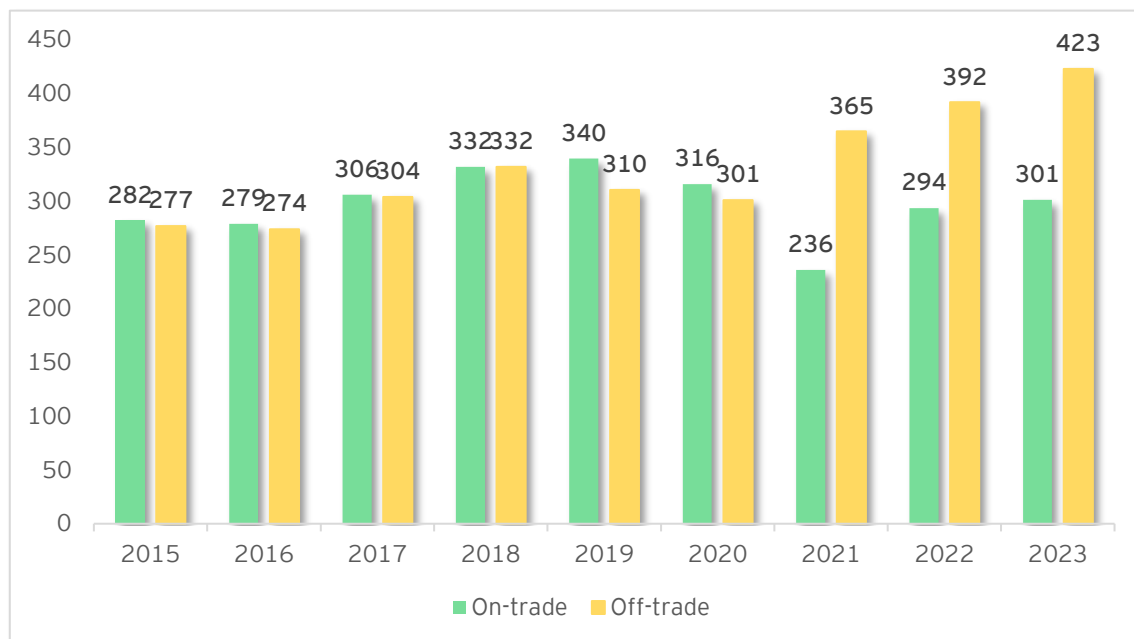


Figure 0.15 Value of locally produced beer in on-trade and off-trade channels (in million euros) (Source: Questionnaires)

The record value of beer sales in the on-trade channel was achieved in 2019, with the largest quantity of beer in this channel sold in 2015, at the beginning of the observed period. In the off-trade channel, the situation is different, and the past three years have brought the highest values and quantities of sales in the period from 2015 to 2023, due both to the growth of the off-trade channel's share in the total beer sales compared to the on-trade channel and to the general rise in prices and the increase in beer prices.

1.7 Responsible Business and Contribution to the Community

The three largest beer companies in the Republic of Serbia - Heineken, Carlsberg, and Apatinska pivara (Molson Coors), are committed to environmental protection, supporting the local community, and promoting responsible consumption of alcoholic beverages, thereby contributing to the creation of a better and higher quality living environment for all residents of our country. From 2015 to 2023, **the breweries have invested more than one million euros in community-focused projects**, thereby helping educational and health institutions, sports and humanitarian organizations, local associations, cultural and artistic societies, farmers, entrepreneurs, small and medium-sized enterprises, as well as all other organizations and initiatives aimed at socio-economic development and preservation of cultural heritage. In the same spirit, during this period, the breweries also carried out numerous investments in the field of environmental protection and energy efficiency, primarily in terms of building wastewater treatment plants, installing solar panels and constructing solar power plants, using biofuels (e.g., biogas and biomass), reducing landfill waste and direct carbon dioxide emissions, as well as through various projects supporting the recycling of packaging waste and the conservation of natural resources, especially water and biodiversity, the use of returnable packaging, the purchase of materials generated in the recycling process, employee volunteering, green initiatives, and similar.

An important aspect of the operations of all three breweries is the prevention of harmful alcohol use, namely the promotion of responsible consumption, which is equally crucial for the beer industry and the community. First and foremost, the breweries have enabled beer lovers to purchase and consume non-alcoholic beer that is almost identical to beer containing alcohol, with continuous investments in research and development

Economic Impact of the Serbian Brewing Sector

aimed at providing an equal consumption experience for both alcoholic and non-alcoholic beer. Furthermore, Heineken, Carlsberg, and Apatinska pivara (Molson Coors) conduct ongoing responsible alcohol consumption campaigns at the national level and collaborate with numerous state institutions (Traffic Police Administration of the Ministry of Interior of the Republic of Serbia, Traffic Safety Agency, Automobile Association of Serbia, etc.) to reduce the harmful consequences of alcohol consumption. Additionally, the breweries are committed to ethical and responsible promotion of their products and are involved in the realization of numerous events where they particularly emphasize the importance of responsible alcohol consumption.

The three largest beer companies in the Republic of Serbia - Heineken, Carlsberg, and Apatinska pivara (Molson Coors), are committed to inclusivity and diversity in the context of employment and job creation, thereby contributing to the establishment of positive practices in the labor market and the economy in general. The breweries also focus on empowering women's positions in society and the workplace, which is manifested through a significant increase in the number of employed women, both in beer production and in leadership positions, thus providing equal opportunities for work, growth, and development to everyone. It is also important to note that the breweries are dedicated to increasing employment and preserving jobs, which was particularly evident during the global coronavirus pandemic when the breweries retained the number of directly employed in the breweries, but also continued to provide support to partners in the HoReCa sector, which perhaps suffered the greatest consequences due to the coronavirus pandemic.

2 Impact of the Beer Sector on the Serbian Economy

In the tables below, the results of the Study on the impact of the brewing sector on the Serbian economy are presented, according to the following categories:

- ▶ Government revenues
- ▶ Added value
- ▶ Employment

Table 0.1 Government revenues from beer (in 000 euros)

Government revenue	2015	2016	2017	2018	2019	2020	2021	2022	2023
Excise	65,578	61,171	78,241	83,107	89,459	87,043	84,120	86,719	91,463
VAT	116,021	113,056	117,130	125,230	131,021	122,585	122,619	139,262	146,649
Social contribution	53,833	50,263	52,575	55,057	65,668	69,333	66,862	69,703	73,227
Corporate taxes	1,201	577	2,435	3,514	1,854	2,525	3,087	2,951	2,202
Other taxes	1,303	1,256	3,439	3,560	2,551	2,481	1,089	1,145	638
Total	237,936	226,323	253,821	270,468	290,552	283,968	277,777	299,781	314,178

Table 0.2 Added value by sectors generated by the production and sale of beer (in 000 euros)

Sector	2015	2016	2017	2018	2019	2020	2021	2022	2023
Beer sector	27,544	24,475	25,744	26,518	32,115	31,583	26,277	25,167	22,316
Supply sector	51,878	49,351	40,866	41,313	52,430	55,600	48,264	55,845	57,066
On-trade channel	65,734	61,973	69,849	76,971	75,375	58,146	62,826	76,636	79,209
Off-trade channel	22,336	21,989	23,308	25,660	27,991	31,697	35,996	39,143	43,748
Total	167,491	157,787	159,766	170,463	187,911	177,027	173,364	196,791	202,339

Table 0.3 The number of people employed as a result of the production and sale of beer

Employment	2015	2016	2017	2018	2019	2020	2021	2022	2023
Breweries	1,678	1,561	1,483	1,481	1,432	1,415	1,385	1,461	1,465
Supply sector	2,909	2,638	2,254	2,156	2,446	2,547	2,155	2,246	2,288
On-trade channel	10,711	9,560	9,837	10,537	10,282	10,682	11,596	10,013	10,229
Off-trade channel	2,046	1,923	1,916	2,003	1,919	1,981	2,431	2,163	2,288
Total	17,344	15,682	15,490	16,177	16,079	16,627	17,567	15,883	16,270

All data in Tables 2.1, 2.2, and 2.3 originate from questionnaires completed by members of the Serbian Brewing Association and calculations by EY. Subsequent sections provide a detailed insights into categories of the brewing sector's impact on the economy - government revenues, added value, and employment.

3 Government Revenues

3.1 Highlights

Table 0.1 Government revenues from beer (in 000 euros)

Government revenues	2015	2016	2017	2018	2019	2020	2021	2022	2023
Excises	65,578	61,171	78,241	83,107	89,459	87,043	84,120	86,719	91,463
Change	-9%	-7%	28%	6%	8%	-3%	-3%	3%	5%
VAT	116,021	113,056	117,130	125,230	131,021	122,585	122,619	139,262	146,649
Change	-7%	-3%	4%	7%	5%	-6%	0%	14%	5%
Social contribution	53,833	50,263	52,575	55,057	65,668	69,333	66,862	69,703	73,227
Change	3%	-7%	5%	5%	19%	6%	-4%	4%	5%
Income taxes	1.201	577	2.435	3.514	1.854	2.525	3.087	2.951	2.202
Change	66%	-52%	322%	44%	-47%	36%	22%	-4%	-25%
Other taxes	1,303	1,256	3,439	3,560	2,551	2,481	1,089	1,145	638
Change	-48%	-4%	174%	4%	-28%	-3%	-56%	5%	-44%
Total	237,936	226,323	253,821	270,468	290,552	283,968	277,777	299,781	314,178
Change	-5%	-5%	12%	7%	7%	-2%	-2%	8%	5%

Source: Questionnaires, EY calculations

3.2 Government Revenues

The Republic of Serbia benefits significantly from the production and sale of beer as it generates revenues from excise duties, value-added tax (VAT), payroll taxes, and contributions for pension, health, and social insurance on behalf of employees and employers, both in the beer sector and in sectors whose operations are related to the production or sale of beer (supply sector, on-trade sector, and retail sector). In addition to these taxes, the state also benefits from the collection of other taxes and fees such as corporate income tax, property tax, excise duties on fuel and other excisable products, water usage fees, environmental protection fees, and similar, which companies in the beer sector pay as part of their regular business operations. Furthermore, we can assume that the beer sector also contributes to state revenues through the collection of taxes and fees in all other sectors associated with it, i.e., with the various aspects of beer production and sale.

It is noteworthy that the beer industry, as part of the manufacturing industry, significantly contributes to the gross domestic product (GDP). The GDP in 2022 amounted to 60.4 billion euros at current prices, and it is estimated that in 2023 the total economic activity measured by the real movement of GDP recorded a growth of 2.5%. Additionally, according to data for 2022, the manufacturing industry accounts for 13.5% of the GDP, and the production of beverages accounts for 0.5% of the total GDP of the Republic of Serbia. Relying on the RZS's estimate of a 0.5% growth in the manufacturing industry during 2023 and data collected from member breweries of the Brewers Association of Serbia, we can conclude that the beer sector continued to contribute to the GDP, and we can expect this trend to continue in the coming years.

Considering the significance of the beer sector for the economy of the Republic of Serbia, for the purposes of this Study, we have calculated the government revenues from the production and sale of beer achieved

Economic Impact of the Serbian Brewing Sector

in the period from 2015 to 2023. The total government revenues in 2023 amounted to just over 314 million euros, representing a growth of 4.8% compared to the previous year and an increase of 32.04% compared to 2015. The total state revenues in 2023, associated with the production and sale of beer, accounted for 1.93% of the total revenues projected by the budget of the Republic of Serbia. The total excise duties on beer paid based on the data provided by the members of the Serbian Brewing Association in 2023 amounted to over 91 million euros, representing a growth of 5.47% compared to 2022 and an increase of as much as 39.47% compared to 2015.

It is also important to point out that during the period from 2015 to 2023, the total government revenues amounted to approximately 2.5 billion euros (cumulatively for the period), and that the member breweries of the Serbian Brewing Association, despite the decrease in beer consumption in the domestic market, the constant increase in beer excise duties, and other challenges they face, make a significant contribution to the budget of the Republic of Serbia, as can be concluded based on the continuous increase in government revenues associated with the production and sale of beer. The trend of total government revenues by year of the observed period can be seen in Figure 3.1.

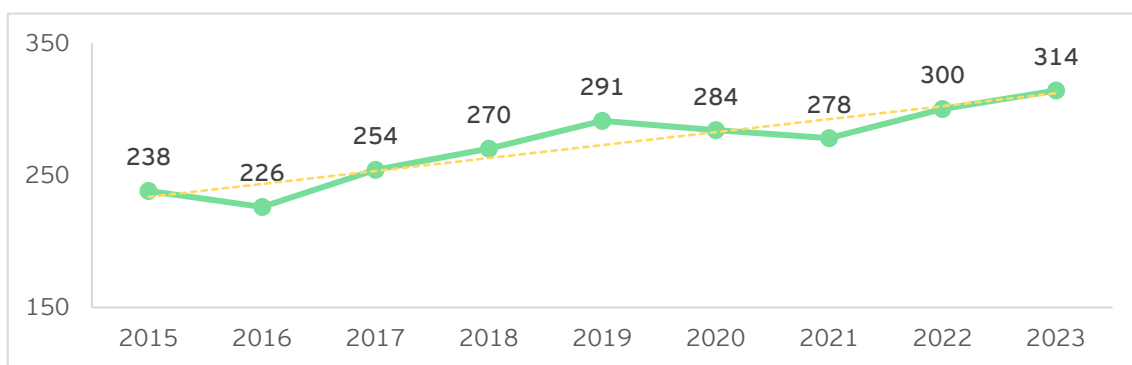


Figure 0.1 Total government revenues due to beer production and sales (in million euros) (Source: Questionnaires, EY calculations)

Total state revenues from beer have several components, including excise duties on beer, VAT, personal income tax, contributions for mandatory pension, health, and social insurance, corporate income tax, and other taxes and fees. Their structure and trends are presented in Figure 3.2.

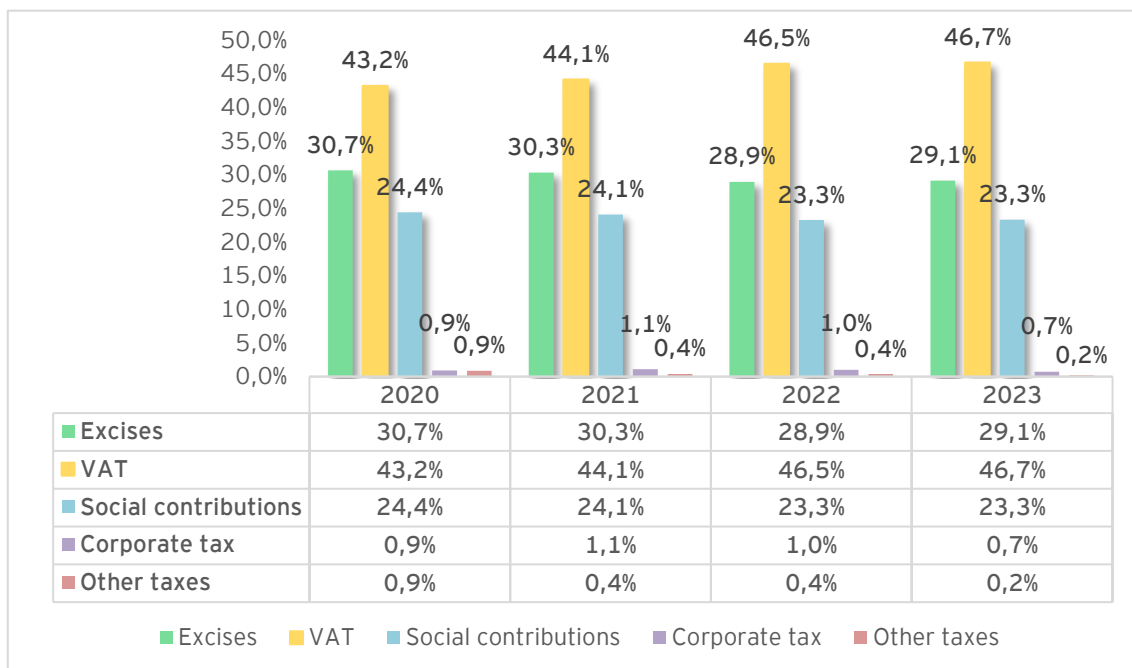


Figure 0.2 Structure of total government revenues from beer (Source: Questionnaires, EY calculations)

Economic Impact of the Serbian Brewing Sector

As can be concluded from Figure 3.2, the structure of government revenues is relatively stable over the past three years. The largest share of government revenues from beer sales in 2023 is occupied by VAT (46.7%) and excise duties (29.1%), followed by social contributions (23.3%), corporate taxes (0.7%), and other taxes (0.2%). The share of VAT gradually increases year by year but still fluctuates around the average values for the period from 2015 to 2023. Essentially, with each further increase in prices, not only of beer but also of all other goods and services, an increase in the value and share of VAT in total government revenues can be expected. Also, any increase in the excise duty rate on beer affects the increase in government revenues from VAT.

3.3 Excise Duties on Alcoholic Beverages

The excise duty rate on alcoholic beverages, including beer, is defined by the Excise Tax Law. The excise duty on beer in 2023 was 28.55 dinars after an 8% increase that came into effect on October 1, 2023, resulting in an increase in excise duty in the absolute amount of 2.11 dinars compared to the excise duty in force in 2022 and for most of 2023 (26.44 dinars). In the coming years, further increases in excise duties on alcoholic beverages can be expected, primarily because the Excise Tax Law stipulates that excise duties are adjusted by the annual consumer price index of the calendar year preceding the year in which the adjustment is made, but also because the Fiscal Strategy for 2024 with projections for 2025 and 2026 envisages an additional increase in excise duties. Moreover, fiscal policy remains the same as outlined in the recently published Fiscal Strategy for 2025 with projections for 2026 and 2027, so an increase in excise duties in 2024 and subsequent years is largely certain.

Figure 3.3 shows the amount of excise duty per liter of beer, and we can conclude that from 2015 to 2023 there is a noticeable continuous increase in excise duties on beer. Also, this graph shows the trend of the average purchasing power in the Republic of Serbia (the ratio of the consumer basket and the average wage before taxes and contributions), and based on it, a clear decline in the purchasing power of the population since 2015 can be observed, reaching the lowest level in 2023. Accordingly, we can assume that there is a disproportionate relationship between the level of excise duties on beer and the average purchasing power in the Republic of Serbia.

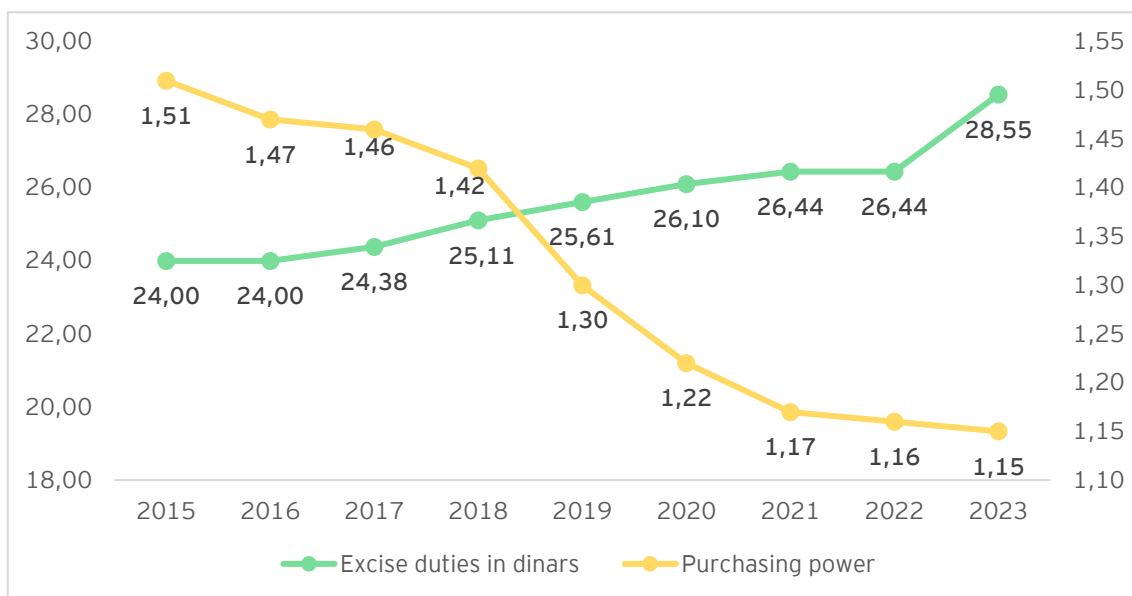


Figure 0.3 Amount of excise duty per liter of beer and purchasing power in the Republic of Serbia
(Source: Excise Tax Law, Report on the Purchasing Power by the Ministry of Internal and Foreign Trade)

From 2015 to 2023, the excise duty on beer increased by 18.96%, and when expressed in euros, this increase amounts to 22.5%. Accordingly, the amount and trend of excise duties per hectoliter of beer expressed in euros are shown in Figure 3.4.

Economic Impact of the Serbian Brewing Sector

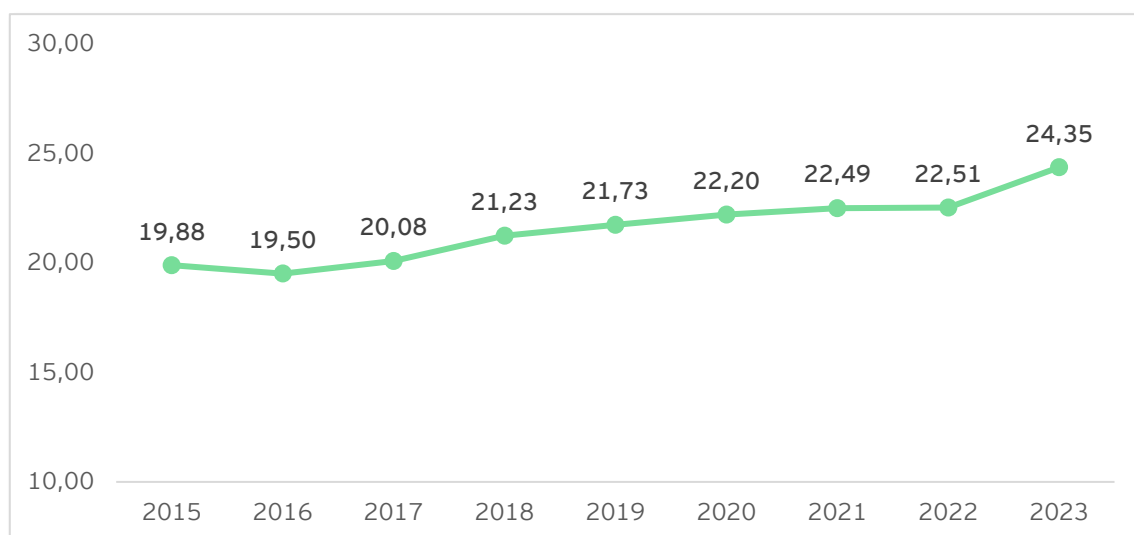


Figure 0.4 Excise duty per hectoliter of beer in euros (Source: Excise Tax Law, EY calculations)

In order to comprehensively examine the trends of excise duties on alcoholic beverages in Serbia, we have also analyzed excise duties on beer, low-alcohol beverages, and strong alcoholic beverages, i.e., spirits, in relation to the consumer price index (CPI). Table 3.2 provides an overview of the trends in excise duties on different categories of alcoholic beverages and the CPI index, with data on excise duties on spirits in 2022 and 2023 shown as a single category due to the change in the method of calculating excise duties on these beverages - the excise duty is calculated in a specific amount that is applied to a base consisting of one hectoliter of pure alcohol measured at a temperature of 20°C. Therefore, the approach to calculating excise duty on beer and low-alcohol beverages remains unchanged, making their amounts comparable throughout the entire period from 2015 to 2023, while the amounts of excise duty on spirits are not comparable between 2021 and 2022.

Table 0.2 Overview of the trends in excise duties and consumer price index on different categories of alcoholic beverages

Category	2015	2016	2017	2018	2019	2020	2021	2022	2023
Beer	23.04	24.00	24.38	25.11	25.61	26.10	26.44	26.44	28.55
Change	2%	4%	2%	3%	2%	2%	1%	0%	8%
Low alcoholic beverages	20.35	21.00	21.33	21.97	22.41	22.84	23.14	23.14	24.99
Change	2%	3%	2%	3%	2%	2%	1%	0%	8%
Wine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Change	0%	0%	0%	0%	0%	0%	0%	0%	0%
Fruit brandy	121.89	124.00	125.98	129.76	132.36	134.87	136.52	46,250	49,950
Cereal brandy	309.23	316.00	321.05	330.68	337.29	343.70	348.17		
Other spirits	198.19	203.00	206.24	212.43	216.68	220.80	223.67		
Change	2%	2%	2%	3%	2%	2%	1%	-	8%
CPI (2006=100)	182.8	185.6	191.2	195.0	198.6	201.1	216.9	249.7	268.8
Change	2%	2%	3%	2%	2%	1%	8%	15%	7.65%

Economic Impact of the Serbian Brewing Sector

We can observe that excise duties on beer are lower than those on spirits but higher compared to excise duties on low-alcohol beverages. However, if we were to adjust the amount of excise duty on spirits to the alcohol content in beer, which is in most cases 5%, we would see that excise duties on beer are higher than those on spirits. Therefore, applying this approach, we come to the conclusion that the excise duty on spirits would amount to 23.13 and 24.98 dinars per liter in 2022 and 2023, respectively, which is significantly lower compared to the excise duty on beer. Furthermore, if we represent the ratio of excise duty on spirits to excise duty on beer in the form of a ratio, we get a value of 0.88, which indicates that the excise duty on spirits constitutes only 88% of the excise duty on beer, further confirming the disproportionate relationship between these two excise duties and calling for a comprehensive differentiation of excise duties on beer.

Generally speaking, excise duties on beer and other alcoholic beverages are adjusted at the beginning of the year by the amount of the change in the CPI from the previous year, as prescribed by the Excise Tax Law, and this is confirmed by the data presented in Table 3.2. The last change in excise duties in 2023 became effective on October 1 of the same year, and the next increase in excise duties on beer, in accordance with the latest Fiscal Strategy adopted by the Government of the Republic of Serbia, was implemented on May 1, 2024, with the current excise duty on beer being 30.72 dinars per liter. Bearing this in mind, we can conclude that the increase in excise duties on beer and other alcoholic beverages follows the trend of the general rise in prices of goods and services, which ultimately results in an increase in public revenues for the Republic of Serbia.

Finally, it is necessary to once again point out the resilience of the beer sector, which, despite the increase in excise duties on beer and reduced beer consumption in the domestic market, continues to make a significant contribution to the economy and budget of the Republic of Serbia, as well as to the entire community.

4 Added Value

4.1 Highlights

Table 0.1 Added value by sectors generated by the production and sale of beer (in 000 euros)

Sector	2015	2016	2017	2018	2019	2020	2021	2022	2023
Beer sector	27,544	24,475	25,744	26,518	32,115	31,583	26,277	25,167	22,316
Supply sector	51,878	49,351	40,866	41,313	52,430	55,600	48,264	55,845	57,066
On-trade channel	65,734	61,973	69,849	76,971	75,375	58,146	62,826	76,636	79,209
Off-trade channel	22,336	21,989	23,308	25,660	27,991	31,697	35,996	39,143	43,748
Total	167,491	157,787	159,766	170,463	187,911	177,027	173,364	196,791	202,339

Source: Questionnaires, EY calculations, RZS

The added value generated by the production and sale of beer generally shows an upward trend in the period from 2015 to 2023, with the exception of 2020 and 2021, which were strongly influenced by the coronavirus pandemic. The total added value in the observed period amounted to approximately 1.6 billion euros.

Figure 4.1 shows the change and structure of added value by components - the beer sector, supply sector, on-trade sector, and off-trade sector, for the period from 2020 to 2023. Based on this figure, we can conclude that the structure of added value varies over the past four years, as well as that the largest growth is achieved by the on-trade and off-trade sectors due to the rise in beer prices in retail. Data for the period from 2021 to 2023 indicate a recovery from the coronavirus pandemic and provide positive signals for the development of the beer sector in the coming period.

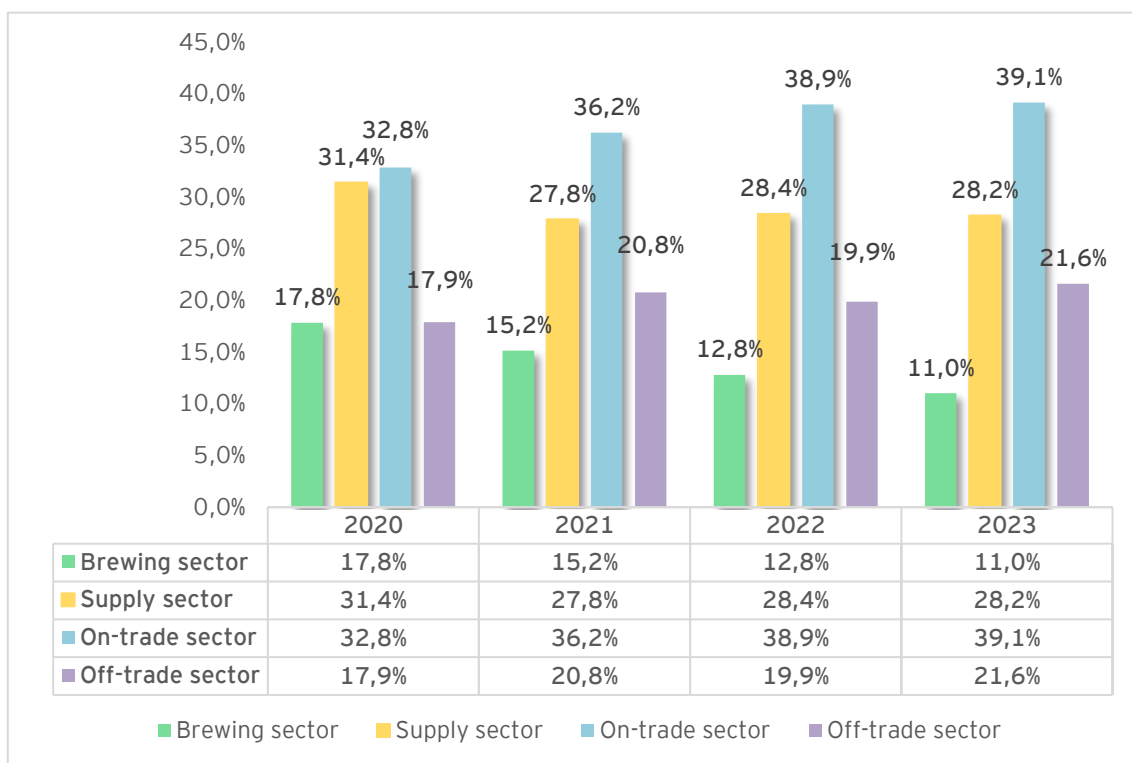


Figure 0.1 Structure of added value (Source: EY calculations)

4.2 Added Value by Sectors

One of the most significant indicators of the economic contribution of the beer industry is the added value created by beer production and the associated supply, retail (off-trade), and hospitality (on-trade) sectors. Added value as such represents the enhancement of products and the way products are offered by a company before the product is offered to customers, and it can also be defined as the amount by which the value of a product is increased at each stage of production, excluding initial costs.

Employees in the beer industry and related sectors (supply sector, on-trade sector, and off-trade sector) generated just over 202 million euros of added value in 2023, with 22.3 million euros generated in the beer sector, 57 million euros in the supply sector, 79.2 million euros in the on-trade channel, and 43.7 million euros in the off-trade channel. Compared to the previous year, there was a growth in added value of 2.8%, and compared to the other two key years - 2020 and 2015, there was a growth of 14.3% and 20.8%, respectively.

The beer sector's share in the total added value generated from the production and sale of beer is 11.0%, which is slightly higher than the beer sector's share in the total employment associated with beer that equals to 9.0%. This situation arises because the productivity of employees in the beer sector is higher compared to the productivity of employees in other sectors. Additionally, the beer industry is capital-intensive compared to retail (off-trade), hospitality (on-trade), and transportation activities, which are labor-intensive and require the engagement of a more significant workforce. Moreover, beer is sold at much higher prices in on-trade and off-trade channels compared to the price that distributors pay to breweries, where breweries are the end-users of goods and services from the supply sector, paying the final price for input raw materials and products and various services.

Figure 4.2 presents the added value by sectors generated by beer in the Republic of Serbia.

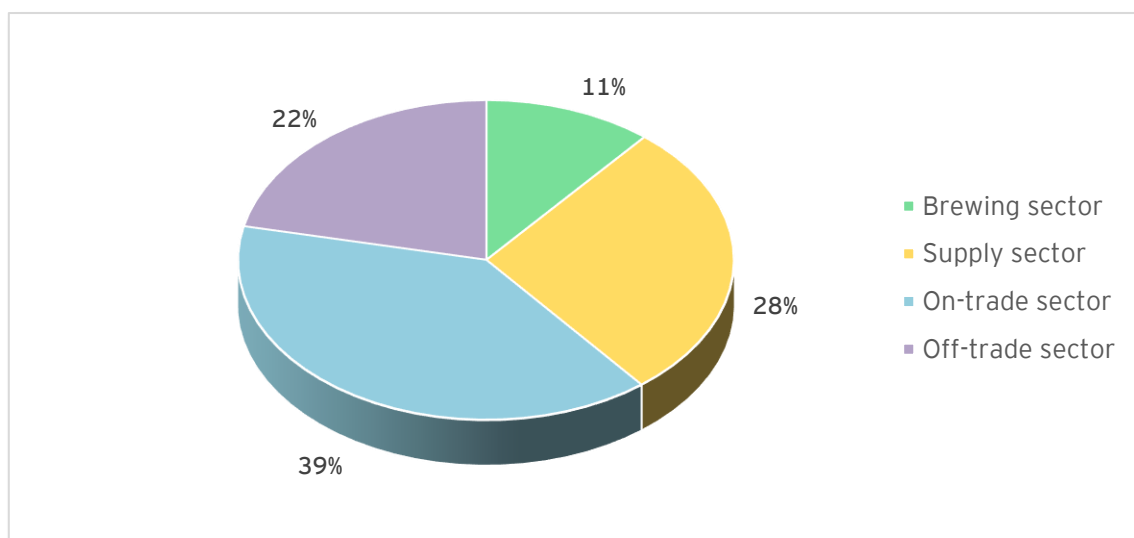


Figure 0.2 Added value by sectors in 2023 (Source: EY calculations)

It is important to note that the added value created by the beer sector and associated sectors in 2023 was at the highest level during the observed period, and it has a long-term tendency to grow. Therefore, it can be expected that the added value will further increase in the coming years. Also, considering the general rise in prices, we can assume that the share of the on-trade and off-trade sectors in the total added value created in the production and sale of beer will continue to grow. Moreover, the share of the supply sector is likely to increase due to the rise in prices of goods and services necessary for beer production. Thus, the beer sector forms the basis of beer production and sales, but the effects of this sector's activities spill over into all other sectors that are more or less connected with the production and/or sale of beer.

5 Employment

5.1 Highlights

Employment generated by the production and sale of beer includes direct employment in breweries, indirect employment in the supply sector, and induced employment in on-trade and off-trade channels, i.e., hospitality and retail.

Based on the data presented in Table 5.1, we can conclude that the beer sector on average produces just over 16 thousand jobs annually, and that the largest number of jobs is created in the on-trade sales channel. Additionally, the number of workers directly employed in breweries that are members of the Serbian Brewing Association shows a positive trend over the past two years.

Table 0.1 Number of employees in the production and sale of beer

Employment	2015	2016	2017	2018	2019	2020	2021	2022	2023
Breweries	1,678	1,561	1,483	1,481	1,432	1,415	1,385	1,461	1,465
Supply sector	2,909	2,638	2,254	2,156	2,446	2,547	2,155	2,246	2,288
On-trade sector	10,711	9,560	9,837	10,537	10,282	10,682	11,596	10,013	10,229
Off-trade sector	2,046	1,923	1,916	2,003	1,919	1,981	2,431	2,163	2,288
Total	17,344	15,682	15,490	16,177	16,079	16,627	17,567	15,883	16,270

Source: Questionnaires, EY Calculations

In 2023, there was an increase in employment compared to the previous year, and growth in employment was also recorded in all sectors that make up the total employment generated by the production and sale of beer. The largest share of total employment in 2023 belongs to the on-trade sector (62.87%), followed by the supply sector (14.06%), off-trade sector (14.06%), and the beer sector (9.0%). A detailed structure of employment by components of employment, i.e., sectors, is provided in Figure 5.1.

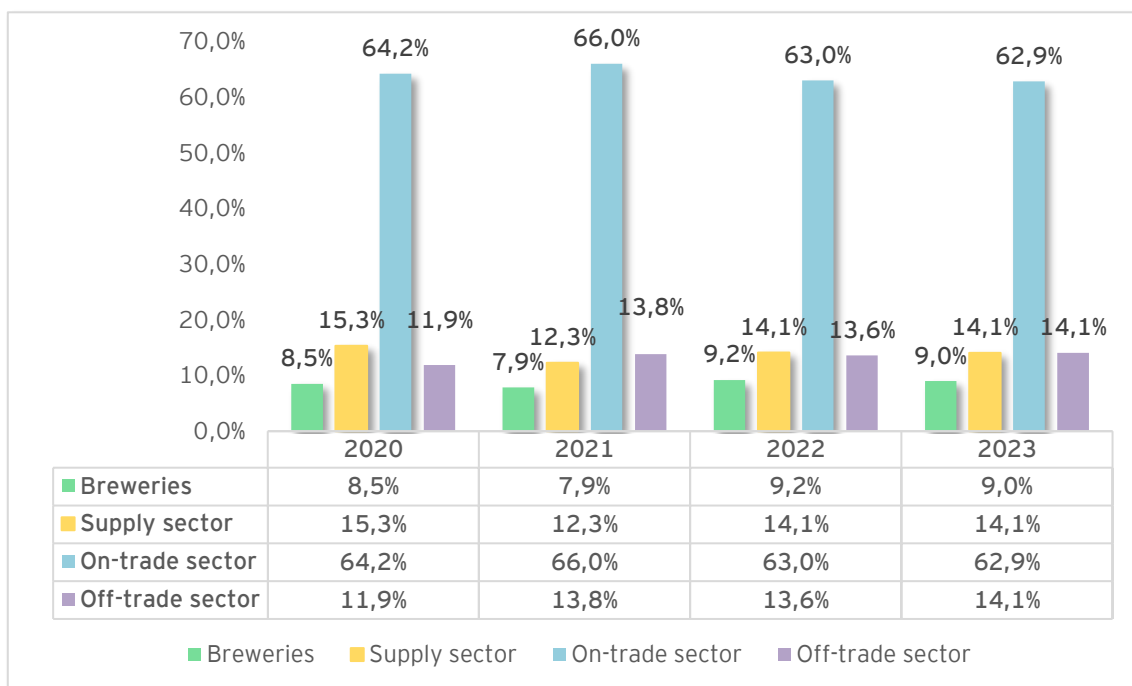


Figure 0.1 Structure of total employment generated by the production and sale of beer by sectors

Economic Impact of the Serbian Brewing Sector

We can observe that the share of the on-trade sector in total employment is lower compared to previous years, and the main reasons for this are the decrease in beer sales in this sales channel and the increase in turnover per employee in the accommodation and food serving sector as one of the parameters used in the calculation of induced employment. Given that employment in the on-trade sector is the most significant component of total employment generated by the production and sale of beer, it is clear that changes in this component have the greatest impact on creating the trend and structure of total employment.

5.2 Total Employment Due to Beer Production and Sales

Total employment associated with the production and sale of beer in 2023 amounted to 16,270 jobs, consisting of 1,465 jobs in the beer sector, 2,288 jobs in the supply sector, 10,229 jobs in the on-trade sector, and 2,288 jobs in the retail sector. Total employment in 2023 was 2.44% higher compared to 2022 and is at the level of the average employment during the observed period.

It is noticeable that the beer sector in the Republic of Serbia, despite experiencing a significant decline in beer production and sales during the coronavirus pandemic, sought to maintain the number of employees directly in the breweries during 2020, with only a slight reduction of 16 employees, from 1,432 in 2019 to 1,415 in 2020. Moreover, there was a significant increase in the number of employees directly in the

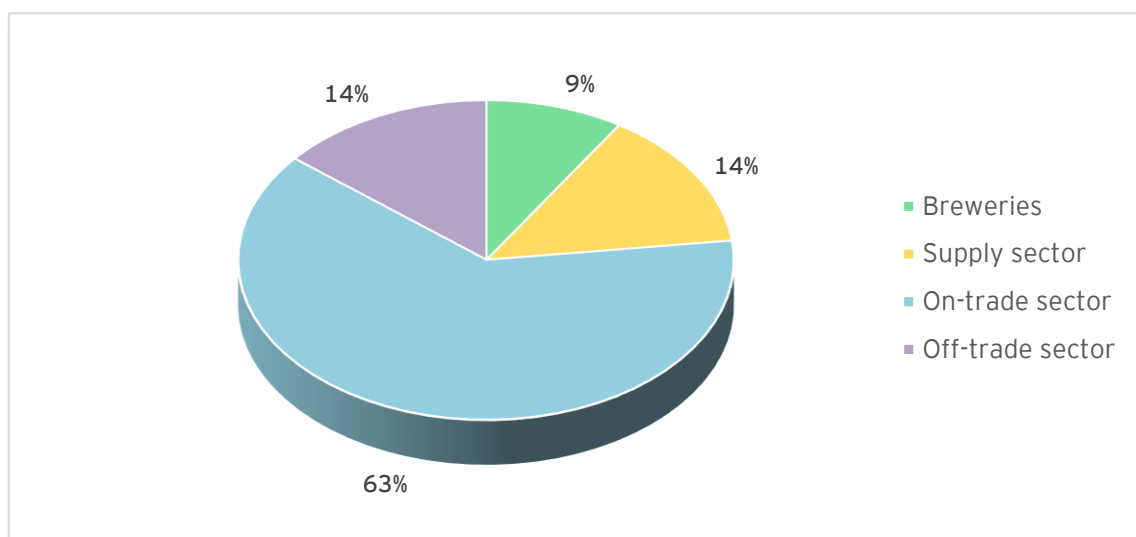


Figure 0.2 Total employment due to beer in 2023 (Source: EY Calculations)

By examining the relationship between direct employment in breweries and the total employment generated by the production and sale of beer in related sectors - the supply sector, on-trade sector, and off-trade sector - we can determine the number of additional jobs created by one employee in the beer industry. Accordingly, in 2023, one job in the beer industry generated 10.11 additional jobs in the supply, hospitality, and retail sectors, while in 2022, the number of additional jobs was slightly lower at 9.87.

Table 0.2 Additional jobs created per one employee in the beer industry

Jobs	2015	2016	2017	2018	2019	2020	2021	2022	2023
Additional jobs created	8.48	8.15	7.16	7.56	10.23	10.74	11.68	9.87	10.11

Source: EY calculations

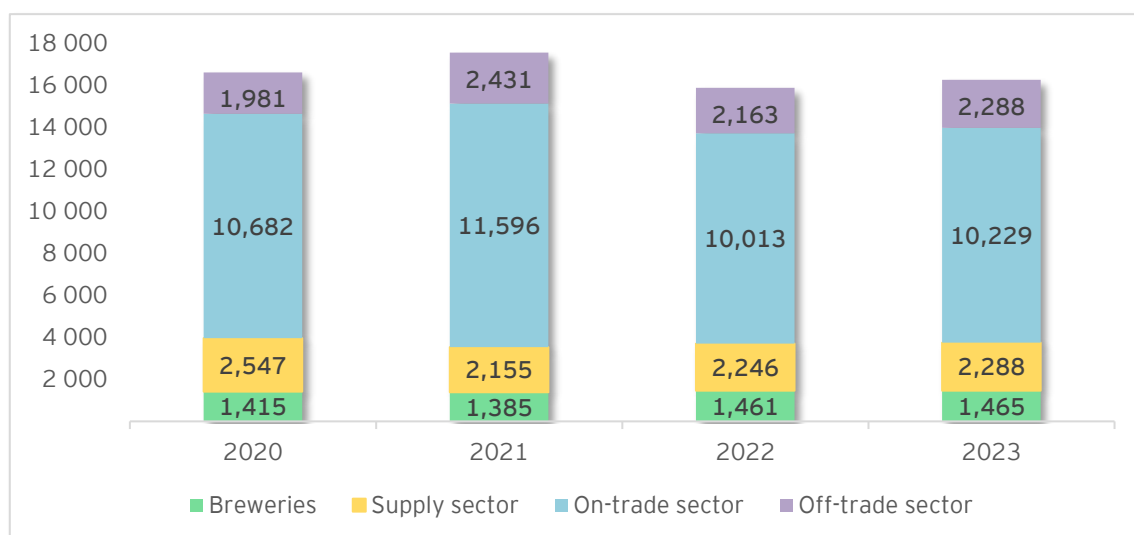


Figure 0.3 Shares of employment in the breweries and related sectors (Source: Questionnaires, EY calculations)

Figure 5.3 represents the share of employment in the beer sector and related sectors, as well as the total employment caused by the production and sale of beer. Total employment includes on-trade and off-trade sales channels, as well as the supply sector, which encompasses agricultural products, utility services, the packaging and bottling industry, industrial products and production equipment, transportation and storage services, media, marketing and communications, and other services. We can observe that employment in the beer sector and employment in related sectors during the period from 2015 to 2023 are at approximately the same level, indicating that these sectors have stable employment. On the other hand, total employment fluctuates during the observed period, with variations in the number of employees in the on-trade channel and retail contributing the most. Although largely conditioned by beer sales and the price of beer in these channels, they also depend on other social and economic circumstances.

5.3 Direct Employment

In 2023, the number of directly employed in breweries was 1,465, which is the highest number of directly employed in breweries since 2019. The most significant increase in the number of directly employed in breweries occurred in 2022 when there was a jump of 5.52%, i.e., an increase from 1,385 employees in 2021 to 1,461 employees in 2022.

Comparing direct employment in breweries with the total beer production, we can notice that the member breweries of the Serbian Brewing Association in 2023 created 0.26 jobs for every thousand hectoliters of beer produced, while the value of this indicator in 2022 was 0.27. According to the latest available data, the average direct employment for every thousand hectoliters of beer produced in the European Union in 2022 was 0.33 jobs, so we can conclude that in the Republic of Serbia, slightly fewer people are employed relative to the volume of production, but consequently, the productivity per employee is somewhat higher compared to the European average. Also, the average direct employment per thousand hectoliters produced in the Republic of Serbia is lower compared to most countries in the region, approximately identical to the average direct employment in Slovenia, and higher than the average direct employment in certain European countries, such as Ireland and Poland.

5.4 Indirect Employment

Indirect employment encompasses the total number of jobs created in the supply sector due to the production and sale of beer. A detailed structure of indirect employment by economic branches and activities is provided in Table 5.3.

Economic Impact of the Serbian Brewing Sector

Table 0.3 Indirect employment associated with beer production

Jobs	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agricultural products	315	277	284	291	257	229	242	313	406
Utilities	287	249	193	200	238	211	196	233	284
Packaging and bottling industry	324	330	203	234	465	457	482	514	421
Equipment manufacturing, and other industries	360	294	290	306	219	182	281	289	390
Transport and storage	379	401	382	348	343	422	339	322	344
Media, marketing, and communication	800	678	464	422	584	661	474	440	322
Other services	443	409	438	355	340	385	142	135	121
Total	2,909	2,638	2,254	2,156	2,446	2,547	2,155	2,246	2,288

Source: Questionnaires, EY calculations

In order to produce beer, various sectors need to provide the necessary goods and services to the beer industry, from agricultural goods (barley, hops, yeast, etc.), water and energy, to packaging materials and production equipment, as well as transportation, storage, marketing services, and all other services related to the production and sale of beer. Therefore, beer production creates significant indirect employment, which in 2023 amounted to 2,288 jobs in the previously mentioned economic branches and activities. Total indirect employment during 2023 increased by 1.89%, with the most additional jobs created in the packaging and bottling industry and agriculture, followed by the equipment and production sector and the transportation and storage sector, with media, marketing and communications, utility services, and other services following. The most significant growth in indirect employment compared to the previous year was recorded in the equipment, production, and other industries sector and in agriculture, due to increased investments in production and procurement of agricultural goods, respectively. A comparative presentation of jobs created in the supply sector due to the production and sale of beer is provided in the following figure.

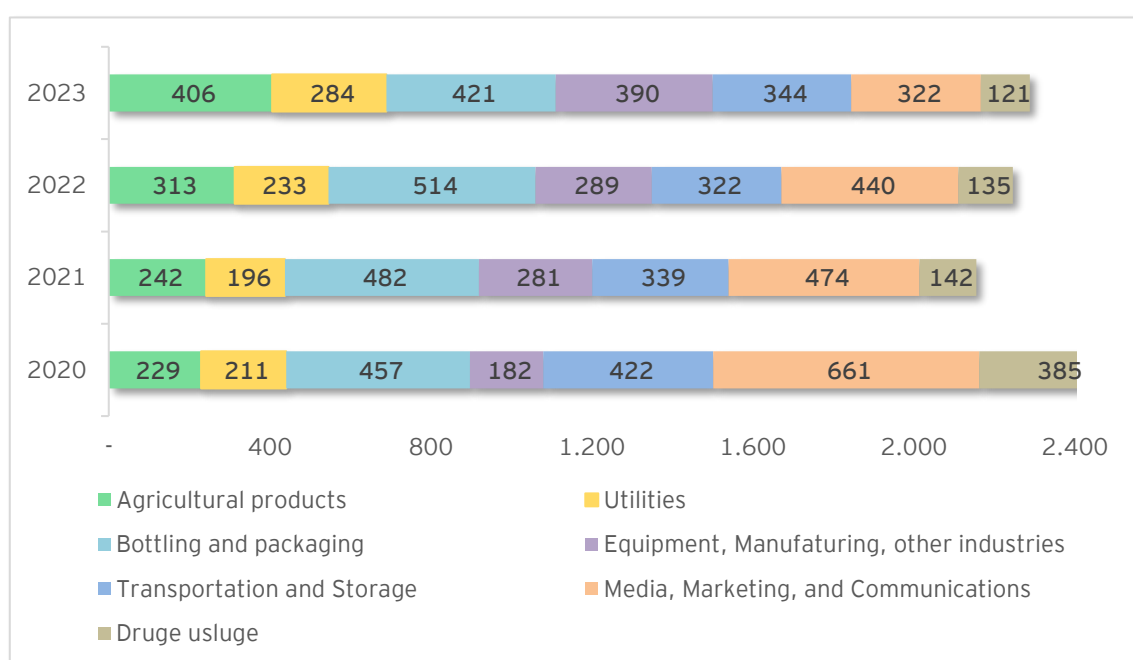


Figure 0.4 Indirect employment by sectors and years (Source: EY calculations)

5.5 Induced Employment

Induced employment represents the total number of jobs created in the hospitality sector (accommodation and food services) and the retail sector as a result of beer sales. The structure of induced employment by sectors is provided in Table 5.4.

Table 0.4 Induced employment associated with beer sale

Jobs	2015	2016	2017	2018	2019	2020	2021	2022	2023
On-trade sector	10,711	9,560	9,837	10,537	10,282	10,682	11,596	10,013	10,229
Off-trade sector	2,046	1,923	1,916	2,003	1,919	1,981	2,431	2,163	2,288
Total	12,757	11,483	11,753	12,540	12,201	12,664	14,027	12,175	12,517

Source: Questionnaires, EY calculations

Beer sales in the on-trade and off-trade sectors, i.e., in the hospitality and retail sectors, create a large number of jobs and significantly contribute to the total employment associated with beer production and sales. Essentially, the beer sector contributes most significantly to employment in the on-trade segment, as evidenced by the calculation results shown in the table above.

On-trade Sector

Beer sales in the on-trade sector created 10,229 jobs in 2023, and 10,013 jobs in 2022. Various factors influence employment trends in the on-trade sector, with the level of demand for beer, the price of beer in hospitality establishments, the total number of hospitality establishments serving beer, changes in consumer habits, and numerous other factors (micro and macroeconomic) being at the forefront. The trend of induced employment in the on-trade sector for the period from 2015 to 2023 is shown in Figure 5.5.

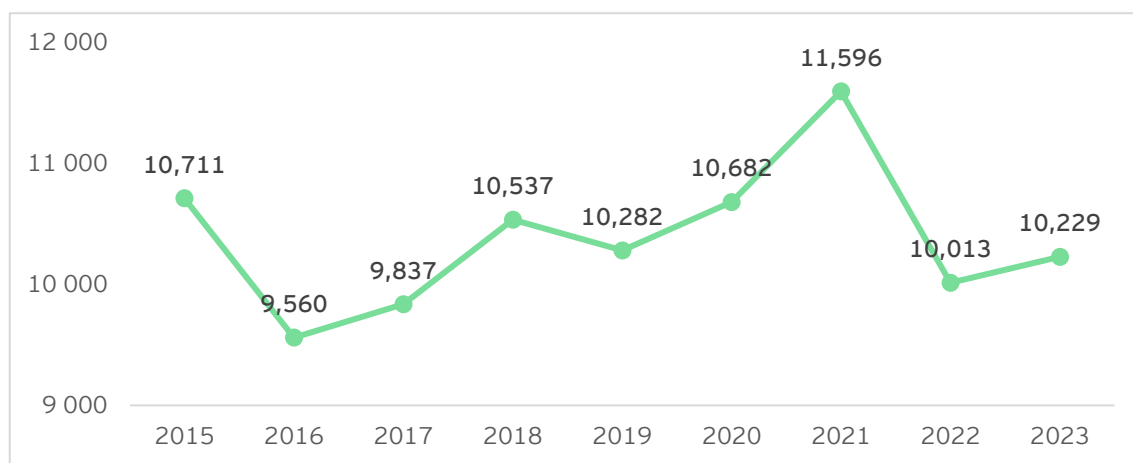


Figure 0.5 Induced employment in the on-trade sector (Source: EY calculations)

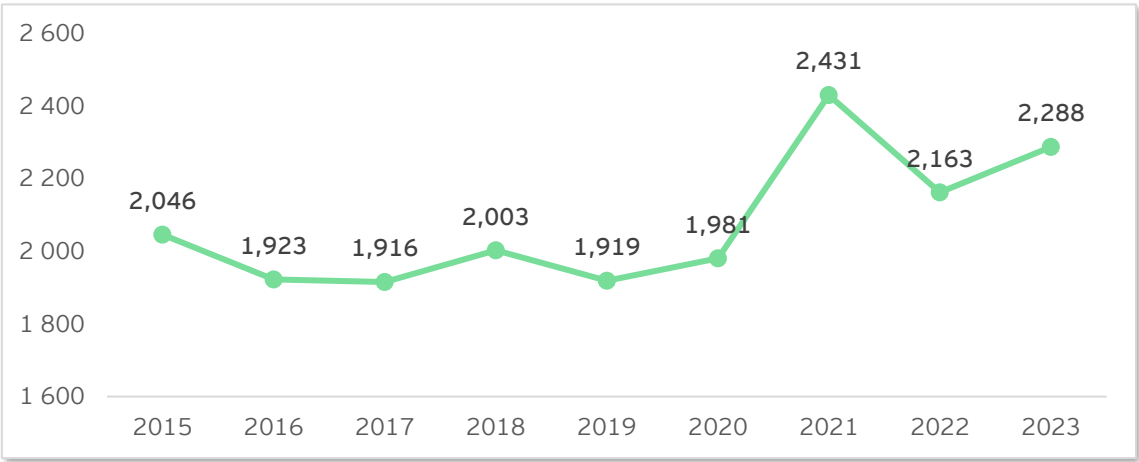
Other jobs in the on-trade sector can be associated with the sale of other products (food, wine, spirits, coffee, tea, etc.).

Off-trade Sector

Beer sales in the off-trade sector created 2,288 jobs in 2023, meaning this number of jobs in the retail sector can be attributed to beer sales. Compared to 2022, when beer sales in the off-trade sector created 2,163 jobs, there was an increase of 5.8%. Various factors also influence employment trends in the off-

Economic Impact of the Serbian Brewing Sector

trade sector, with the level of demand for beer, the price of beer in retail, the network of retail outlets that sell beer, changes in consumer habits, and numerous other factors (micro and macroeconomic) being at the forefront. The trend of induced employment in the off-trade sector for the period from 2015 to 2023 is shown in Figure 5.6.



Graph 0.6 Induced employment in the off-trade sector (Source: EY calculations)

Other jobs in the off-trade sector can be associated with the sale of other products (food, wine, spirits, coffee, tea, etc.).

6 Procurement by Breweries in the Republic of Serbia

6.1 Highlights

During 2023, the three largest beer companies in the Republic of Serbia spent more than 259 million euros on goods and services to be able to produce and sell beer. Compared to 2022, when the total procurements of the beer sector amounted to approximately 215 million euros, there was an annual growth of 20.9%. The largest part of the procurements was realized from domestic suppliers, with the most significant costs related to bottling and packaging and agricultural products.

Table 6.1 Total procurement of the beer sector in the Republic of Serbia (in 000 euros)

Sector	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agricultural products	22,772	21,680	28,130	29,702	27,961	27,676	32,163	42,828	61,755
Utilities	9,314	8,291	7,239	7,855	8,871	7,810	8,647	10,751	13,433
Bottling and packaging	37,969	35,699	35,392	43,059	46,047	44,147	56,000	75,929	93,836
Equipment, Manufacturing, other industries	24,543	20,308	21,188	23,016	16,140	12,882	20,508	26,411	37,547
Transportation and Storage	17,547	16,104	16,517	16,644	17,754	17,551	16,345	21,854	25,046
Media, Marketing & Communications	43,795	39,229	28,437	28,085	43,380	42,432	31,788	32,131	23,482
Other services	10,078	9,580	11,005	9,810	10,283	11,332	4,263	4,672	4,332
Total	166,017	150,891	147,908	158,170	170,436	163,830	169,715	214,576	259,431

Source: Questionnaires, EY Calculations

Observing the trend of total procurements in the period from 2015 to 2023, we can conclude that breweries in the Republic of Serbia have so far spent more than 1.6 billion euros for these purposes and that there has been a growth of 56.3% if we compare the beginning and the end of the observed period. Also, it can be noted that the total procurements of the beer sector tend to grow in the long term, and the general rise in prices of goods and services, the total demand for beer, business decisions of individual breweries, and other factors will affect the increase in their value in the future.

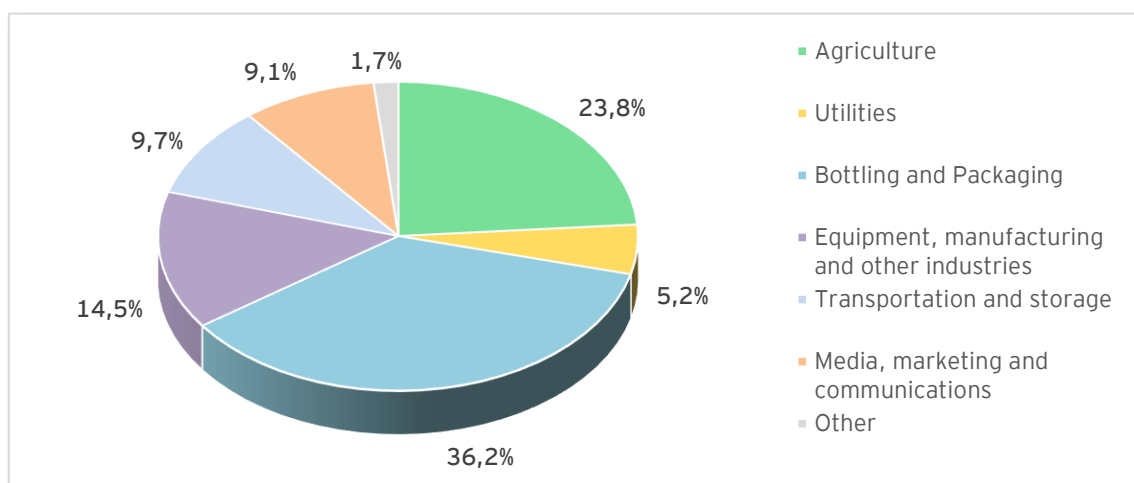


Figure 6.1 Structure of the beer sector's procurement in 2023

Economic Impact of the Serbian Brewing Sector

6.2 Procurement of Goods and Services

In 2023, breweries in the Republic of Serbia spent a total of 259.4 million euros on goods and services to be able to produce and sell beer in domestic and foreign markets (local beer consumption and beer exports). Approximately 74% of the breweries' procurements were carried out in the Republic of Serbia, i.e., the necessary goods and services were mostly procured from domestic suppliers, thus providing a significant boost to the economy of our country. The relationship between total procurement and procurement realized in the republic of Serbia is shown in Table 6.2.

Table 6.2 Total procurement and procurements realized in the Republic of Serbia in 2023 (in 000 euros)

Sectors	Total procurement	% of procurement in Serbia	Procurement in Serbia
Agricultural products	61.755	74,4%	45.913
Utilities	13.433	100,0%	13.433
Bottling and packaging	93.836	43,3%	40.586
Equipment and production	37.547	100,0%	37.547
Transport and Storage	25.046	100,0%	25.046
Media, Marketing & Communications	23.482	100,0%	23.482
Other services	4.332	100,0%	4.332
Total	259.431	73,4%	190.340

Source: Questionnaires, EY Calculations

The packaging and bottling industry has the highest share in total procurement throughout the entire observed period, with its participation in 2023 amounting to 36.2%. The packaging and bottling industry is followed by the agriculture sector with 23.8%, the equipment, production, and other industries sector with 14.5%, the transportation and storage sector with 9.7%, the media, marketing, and communications sector with 9.1%, and the utility services and other services sectors.

Regarding procurements realized in the Republic of Serbia, utility services, equipment, transportation and storage services, media, marketing, and communication services, and other services are entirely procured from local suppliers. On the other hand, the procurement of agricultural products and services and materials for packaging and bottling is carried out in the Republic of Serbia to the highest possible capacity and as such fundamentally depends on the availability of certain goods and services in the domestic market. Specifically, there is a limited supply of hops, glass bottles, and metal can closures on the Serbian market, so these products are mostly procured from foreign suppliers.

In essence, the total procurements of the beer sector realized by local suppliers in the Republic of Serbia were just over 190 million euros in 2023, representing a growth of 7.7% compared to 2022 and a value higher than the value of total procurements (domestic and foreign) realized during each individual year of the period from 2015 to 2021.

6.3 Impact on the Agricultural Sector

The use of agricultural products in the beer industry is at an exceptionally high level because beer is a natural beverage made from malted grains (mainly barley or wheat), hops, yeast, etc. Malt from brewing barley is certainly one of the most important ingredients in beer and as such represents the most common agricultural resource used in its production.

Economic Impact of the Serbian Brewing Sector

Given this, the procurement of raw materials and agricultural ingredients necessary for beer production accounts for nearly a quarter of the total procurement costs of beer producers in the Republic of Serbia in 2023, i.e., 23.8% of the value of total procurement. The total value of procurement costs for agricultural products in 2023 was 61.7 million euros, with 45.9 million euros spent in the Republic of Serbia. The structure of the procurement of agricultural products in 2023 is provided in Table 6.3.

Table 6.3 Total procurement of agricultural products and procurement of agricultural products realized in the Republic of Serbia in 2023 (in 000 euros)

Agricultural products	Total procurement	% of procurement in Serbia	Procurement in Serbia
Malt	42,661	80.7%	34,432
Hops	2,570	30.2%	775
Other	16,524	64.8%	10,706
Total	61,755	74.4%	45,913

Source: Questionnaires

It is important to note that during the period from 2015 to 2023, on average, 78.2% of agricultural product procurements were realized in the Republic of Serbia. The percentage share of agricultural product procurements realized in the Republic of Serbia in the total procurement of agricultural products is shown in Figure 6.2.

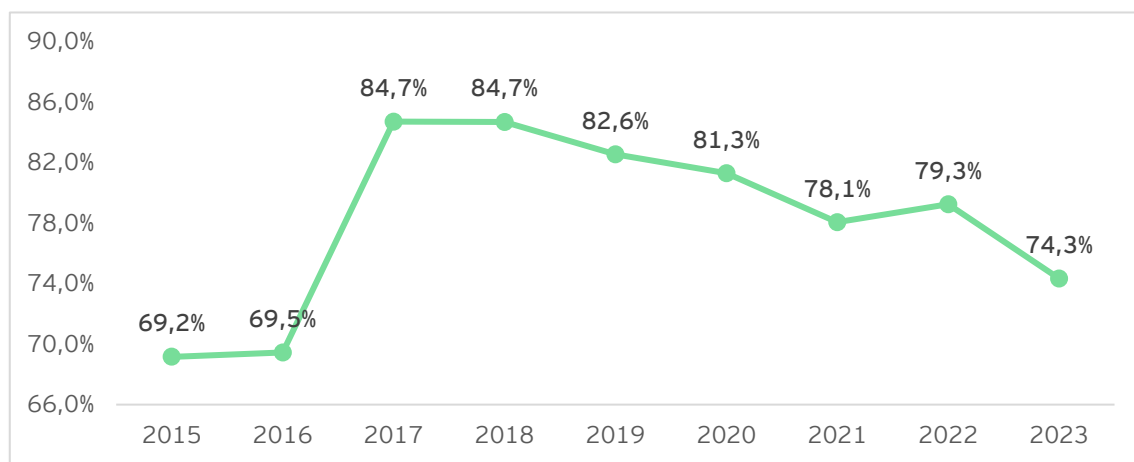


Figure 6.2 Share of agricultural products procurement realized in the Republic of Serbia in total agricultural products procurement (Source: Questionnaires)

7 Comparative Analysis of Prices and Excise Duties

This part of the Study compares beer prices in the on-trade and off-trade sectors, the total excise duty burden, and the average income of individuals and families between the Republic of Serbia, European Union countries, and the United Kingdom. The comparative analysis of prices and excise duties consists of the following three phases:

- ▶ First phase - Compares the total excise duty burden on beer prices, the average beer price in on-trade and off-trade sectors, average monthly incomes of individuals and families, and the share of the total excise duty burden in the beer price between countries.
- ▶ Second phase - Ranks countries in the previously mentioned categories and determines the degree of discrepancy between the average monthly incomes of individuals and families and the share of the total excise duty burden in the beer price for each country.
- ▶ Third phase - Provides a brief review of the system of calculation and collection of excise duties in the Republic of Serbia and European Union countries.

The main conclusions of the comparative analysis of prices and excise duties are as follows:

- ▶ The Republic of Serbia has lower wages and higher excise duties in relative comparison with the European Union average.
- ▶ The Republic of Serbia has the fourth largest negative gap between the average income of individuals and the total excise duty burden on on-trade beer prices, and the fifth largest negative gap between the average monthly income of families and the total excise duty burden on off-trade beer prices.
- ▶ The Republic of Serbia has the 17th highest excise duty per liter of beer and the 19th highest total excise duty burden compared to European Union countries.
- ▶ The method of calculating excise duties in the Republic of Serbia significantly differs from the calculation methods applied in European Union countries.

7.1 Excise Duties and Total Excise Duties

Beer, as an alcoholic beverage, is subject to taxation in two ways - excise duties and VAT.

Excise duties are specific taxes that are most commonly based on the quantity of alcohol in the beverage. It is an absolute amount of money that is paid per unit of alcohol contained in the beverage or per unit of measure of the alcoholic beverage (e.g., liter). Therefore, the price of the product does not affect the amount of excise duty, so the same amount of excise duty is paid on the same quantity of beverage regardless of whether the beverage is sold in the off-trade or on-trade sector, or whether it is purchased in retail or consumed in a public place or bar. It is important to note that there are different levels of excise duties for different categories of beverages.

VAT is an *ad valorem* tax that is charged as a percentage (currently 20% in Serbia) of the sales value or price. As the price of alcohol increases, the absolute value of VAT automatically rises since VAT is paid on the value/price of the product. Given that VAT is charged on the price of beer that includes excise duties, it follows that an increase in excise duties causes an increase in price not only by the absolute amount of the excise duty but also by an additional 20% of the value of the excise duty itself due to the impact of VAT. It is important to note that the same rate of VAT is charged for different types of beverages.

Data on the level of excise duties on alcoholic beverages and the VAT rate in European Union countries were collected from the official website of the European Commission. These data contain the basis for calculating excise duties, a detailed explanation of the procedure for calculating excise duties, and the amount of excise duty on beer and other alcoholic beverages. Data on the amount of excise duty and the VAT rate in the

Economic Impact of the Serbian Brewing Sector

Republic of Serbia were taken from the Excise Tax Law and the Value Added Tax Law, respectively.

7.2 Average On-trade and Off-trade Beer Prices

Table 7.1 shows the average beer prices, total excise burden per liter of beer, and the rankings of European Union countries and the Republic of Serbia. The countries are ranked according to the real *GDP per capita* achieved in 2023.

Table 7.1 Excise duties and total excise burden per liter of beer (in euros)

Country	Real GDP per capita	Excise duty per Liter of Beer	Total Excise Burden per 1l of Beer	On-trade Average Price	On-trade Rank	Off-trade Average Price	Off-trade Rank
 Luxembourg	83,320	0.10	0.11	9.39	8	3.13	6
 Ireland	71,700	2.71	3.33	9.35	9	4.52	2
 Denmark	52,510	0.33	0.41	12.27	4	2.35	9
 Sweden	44,650	1.00	1.25	11.25	5	4.19	3
 The Netherlands	44,460	0.41	0.49	13.14	3	1.67	21
 United Kingdom	38,252	1.13	1.35	8.69	14	3.25	5
 Austria	37,460	0.24	0.29	9.25	12	2.23	12
 Belgium	37,300	0.24	0.29	10.41	7	2.23	13
 Finland	36,990	1.81	2.24	14.62	1	4.79	1
 Germany	35,630	0.09	0.11	9.34	10	1.41	25
 France	33,750	0.40	0.48	13.41	2	2.14	15
 Italy	28,520	0.36	0.44	10.99	6	2.32	10
 Cyprus	27,720	0.06	0.07	9.26	11	3.40	4
 Spain	25,210	0.10	0.12	7.26	17	1.53	23
 Slovenia	22,090	0.61	0.74	5.67	19	2.52	8
 Portugal	19,729	0.24	0.30	8.80	13	2.31	11
 Greece	19,150	0.60	0.74	7.32	16	2.21	14
 Czech Republic	18,480	0.15	0.18	3.20	24	1.67	22
 Slovakia	16,490	0.43	0.52	1.52	28	1.46	24
 Estonia	15,370	0.67	0.80	7.96	15	2.87	7
 Lithuania	14,840	0.47	0.57	5.81	18	2.13	16
 Croatia	14,750	0.64	0.80	4.63	20	2.00	17
 Poland	14,740	0.29	0.36	4.08	23	1.74	19
 Hungary	14,370	0.55	0.69	2.89	25	1.96	18
 Latvia	13,220	0.45	0.54	4.23	21	1.70	20

Economic Impact of the Serbian Brewing Sector

	Romania	10,250	0.11	0.13	2.11	27	1.25	27
	Bulgaria	7,850	0.09	0.11	2.21	26	1.05	28
	Serbia	6,430	0.24	0.29	4.15	22	1.30	26

Source: European Commission, Eurostat, Excise Tax Law, EY Calculations

The amount of the total excise burden represents the amount of excise duty per liter of beer increased by the amount of VAT charged on the price including the excise duty, and therefore it differs from the level of excise duty per liter of beer. The highest total excise burden of €3.33 per 1l of beer is recorded in Ireland, where an excise duty of €22.55 per hectoliter of beer by Plato degree and a VAT rate of 23% are charged. The lowest total excise burden of €0.07 per 1l of beer was recorded in Cyprus, where an excise duty of €6 per hectoliter of beer and a VAT rate of 19% are charged.

The average value of excise duties in the observed countries in 2023 was €0.52 per liter of beer, which roughly corresponds to the level of excise duty in Hungary. In the Republic of Serbia, an excise duty of €0.24 per liter of beer is charged, placing our country in 17th place in terms of excise duty compared to 28 countries (European Union and the United Kingdom). The total excise burden per liter of beer in our country amounts to €0.29, ranking it 19th out of the 28 observed countries.

For the average beer price of European countries, we used the EY study "The Contribution of Beer to the European Economy 2016". Due to the lack of more recent data, we had to estimate beer prices for subsequent years using the Harmonized Index of Consumer Prices for beer (HICP) (2015=100).

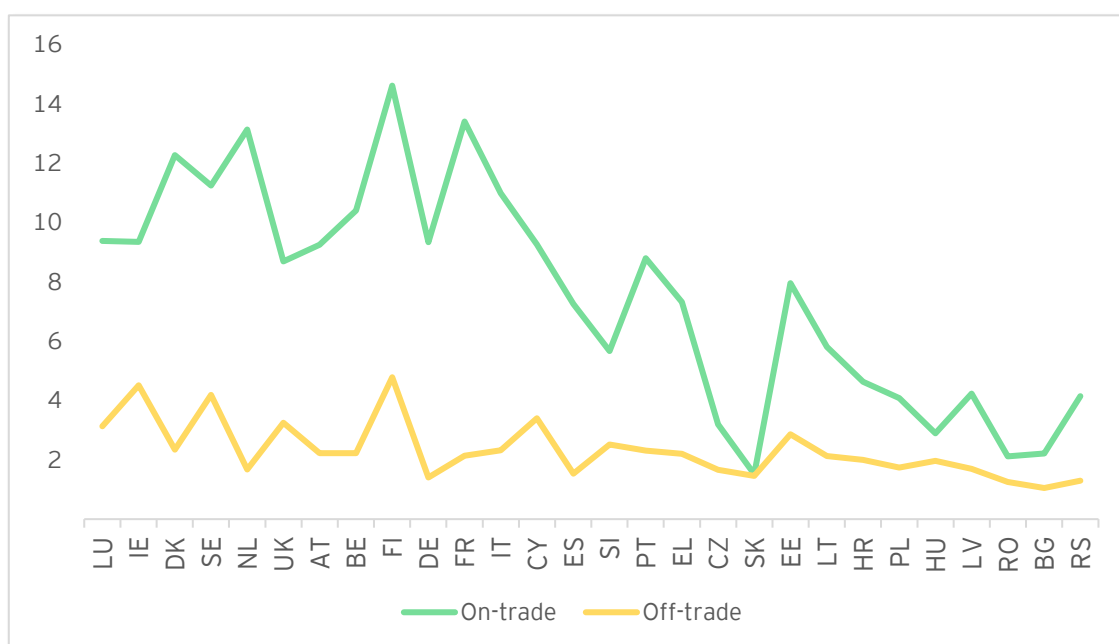


Figure 7.1 Average price of 1l of beer in the on-trade and off-trade sector (in euros)

The highest price of 1l of beer in the on-trade sector in 2023 was in Finland (€14.62), and the lowest in Slovakia (€1.52). The average price of beer in the on-trade sector in the Republic of Serbia in 2023 was €4.15, positioning our country in 22nd place out of the 28 analyzed countries.

The highest price of 1l of beer in the off-trade sector in 2023 was also in Finland (€4.79), and the lowest in Bulgaria (€1.05). The average price of beer in the off-trade sector in the Republic of Serbia in 2023 was €1.30, placing our country in 26th place out of a total of 28 countries.

Economic Impact of the Serbian Brewing Sector

7.3 Share of Total Excise Duties in Beer Price

Relying on the calculation of the total excise burden and data on the average beer price in the observed countries, we have determined the share of the total excise burden in the beer price in both on-trade and off-trade sectors to show how much the beer price is actually burdened by excise duty. The countries are ranked according to the real GDP *per capita* achieved in 2023.

Table 7.2 Share of excise duty in average on-trade and off-trade prices

Country	Real GDP per capita	Total Excise Burden per 1l of Beer	Share of Excise Duty in Average On-trade Price	On-trade Rank	Share of Excise Duty in Average Off-trade Price	Off-trade Rank
 Luxembourg	83,320	0.11	1%	27	4%	27
 Ireland	71,700	3.33	36%	1	74%	1
 Denmark	52,510	0.41	3%	22	17%	18
 Sweden	44,650	1.25	11%	9	30%	9
 The Netherlands	44,460	0.49	4%	19	29%	10
 United Kingdom	38,252	1.35	16%	5	42%	3
 Austria	37,460	0.29	3%	23	13%	20
 Belgium	37,300	0.29	3%	24	13%	19
 Finland	36,990	2.24	15%	6	47%	2
 Germany	35,630	0.11	1%	26	8%	25
 France	33,750	0.48	4%	20	22%	15
 Italy	28,520	0.44	4%	18	19%	17
 Cyprus	27,720	0.07	1%	28	2%	28
 Spain	25,210	0.12	2%	25	8%	26
 Slovenia	22,090	0.74	13%	7	29%	11
 Portugal	19,729	0.30	3%	21	13%	21
 Greece	19,150	0.74	10%	10	34%	7
 Czech Republic	18,480	0.18	6%	16	11%	22
 Slovakia	16,490	0.52	34%	2	35%	6
 Estonia	15,370	0.80	10%	11	28%	12
 Lithuania	14,840	0.57	10%	12	27%	13
 Croatia	14,750	0.80	17%	4	40%	4
 Poland	14,740	0.36	9%	13	21%	16
 Hungary	14,370	0.69	24%	3	35%	5
 Latvia	13,220	0.54	13%	8	32%	8
 Romania	10,250	0.13	6%	15	11%	23

Economic Impact of the Serbian Brewing Sector

	Bulgaria	7,850	0.11	5%	17	11%	24
	Serbia	6,430	0.29	7%	14	23%	14

Source: European Commission, Eurostat, Excise Tax Law, EY Calculations

The highest share of the total excise burden in the on-trade beer price was recorded in Ireland, the country with the highest excise duty, followed by Slovakia, which has the lowest beer price in the on-trade sector but is significantly burdened by excise duty. The lowest excise burden on the on-trade beer price is found in Luxembourg and Cyprus, countries with considerably lower tax rates and numerous tax reliefs compared to other European countries.

The highest share of the total excise burden in the off-trade beer price was also recorded in Ireland, followed by Finland, the United Kingdom, and neighboring Croatia. Again, Luxembourg and Cyprus have the lowest excise burden on the off-trade beer price.

Regarding the Republic of Serbia, the total excise burden on the beer price amounts to 7% and 23% for the on-trade and off-trade sectors, respectively, placing us in 14th place in both cases compared to other countries. The share of the total excise burden in the beer price in the observed countries is shown in Figure 7.2.

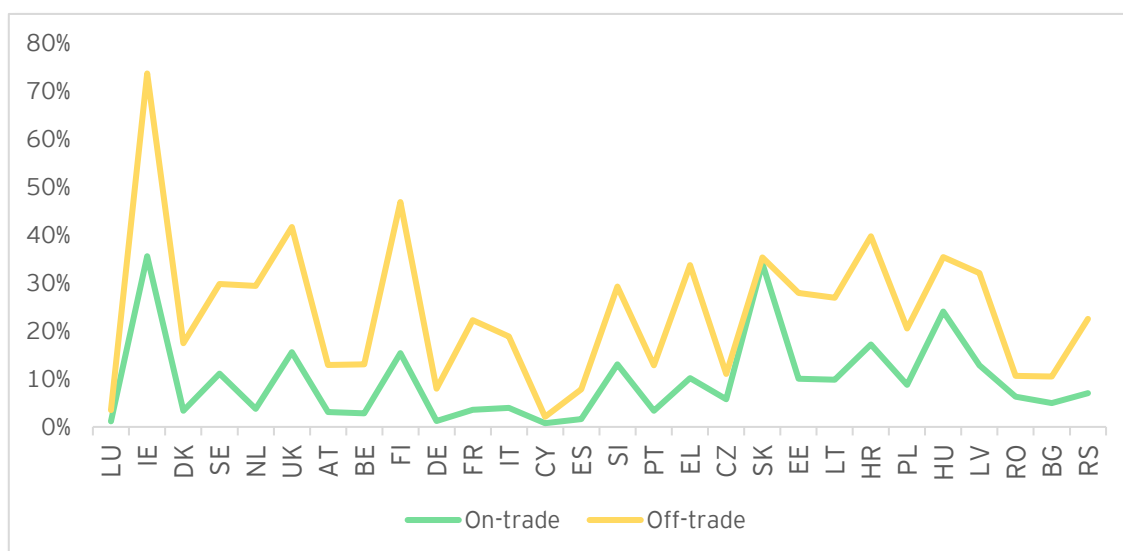


Figure 7.2 Share of total excise burden in beer price

By comparing the rank of the average beer price and the rank of the share of the total excise burden in the beer price, we can conclude that beer prices in the Republic of Serbia, although lower compared to beer prices in European Union countries, are significantly burdened by excise duties.

7.4 Average Monthly Income

To adequately compare the average beer prices and the total excise burden between the observed countries, we have placed them in the context of average monthly incomes. Accordingly, we used the average monthly incomes of the following two groups:

- ▶ Individual - an employed individual; and
- ▶ Family - both spouses employed, with two children.

Average monthly income represent the total available household income generated by adding the personal earnings of household members and income received at the household level. Household incomes include:

- ▶ All income from work (salaries of employed persons and earnings of self-employed individuals);

Economic Impact of the Serbian Brewing Sector

- ▶ Private income from investments and property;
- ▶ Transfers between households;
- ▶ All social transfers received in cash, including old-age pensions.

Table 7.3 shows the average monthly incomes of individuals and families by observed countries. Countries are ranked according to the real GDP *per capita* achieved in 2023.

Table 7.3 Average monthly incomes of individuals and families in 2023 (in euros)

Country	Real GDP per capita	Total excise Burden per 1l of Beer	Individual Income	Individual Income Rank	Family Income	Family Income Rank
 Luxembourg	83,320	0.11	3,970	1	8,731	1
 Ireland	71,700	3.33	3,301	4	6,883	4
 Denmark	52,510	0.41	3,382	3	7,063	3
 Sweden	44,650	1.25	2,936	6	6,122	7
 The Netherlands	44,460	0.49	3,463	2	7,328	2
 United Kingdom	38,252	1.35	1,477	14	3,157	14
 Austria	37,460	0.29	2,986	5	6,754	5
 Belgium	37,300	0.29	2,914	7	6,028	8
 Finland	36,990	2.24	2,751	9	5,999	9
 Germany	35,630	0.11	2,870	8	6,251	6
 France	33,750	0.48	2,504	10	5,285	10
 Italy	28,520	0.44	2,009	11	4,017	11
 Cyprus	27,720	0.07	1,741	0	3,547	13
 Spain	25,210	0.12	1,858	12	3,792	12
 Slovenia	22,090	0.74	1,291	18	2,767	17
 Portugal	19,729	0.30	1,294	16	2,688	19
 Greece	19,150	0.74	1,278	19	2,793	16
 Czech Republic	18,480	0.18	1,291	17	2,765	18
 Slovakia	16,490	0.52	981	23	2,143	23
 Estonia	15,370	0.80	1,360	15	2,871	15
 Lithuania	14,840	0.57	1,083	20	2,320	20
 Croatia	14,750	0.80	1,002	22	2,248	22
 Poland	14,740	0.36	905	24	1,944	25
 Hungary	14,370	0.69	896	25	1,963	24
 Latvia	13,220	0.54	1,026	21	2,253	21
 Romania	10,250	0.13	746	26	1,590	26

Economic Impact of the Serbian Brewing Sector

	Bulgaria	7,850	0.11	701	27	1,479	27
	Serbia	6,430	0.29	312	28	667	28

Source: European Commission, Eurostat, Excise Tax Law, EY Calculations

The highest average monthly incomes for both groups, individuals and families, were recorded in Luxembourg, while the lowest average monthly incomes were in the Republic of Serbia. Therefore, the Republic of Serbia ranks 28th for both average monthly incomes of individuals and average monthly incomes of families. If we correlate the rank of the Republic of Serbia in terms of average monthly incomes with the share of the total excise burden in the beer price, it can be concluded that our country is among those with the lowest purchasing power and the highest total excise burden on beer. Figure 7.3 shows the average monthly incomes of individuals and families in the observed countries.

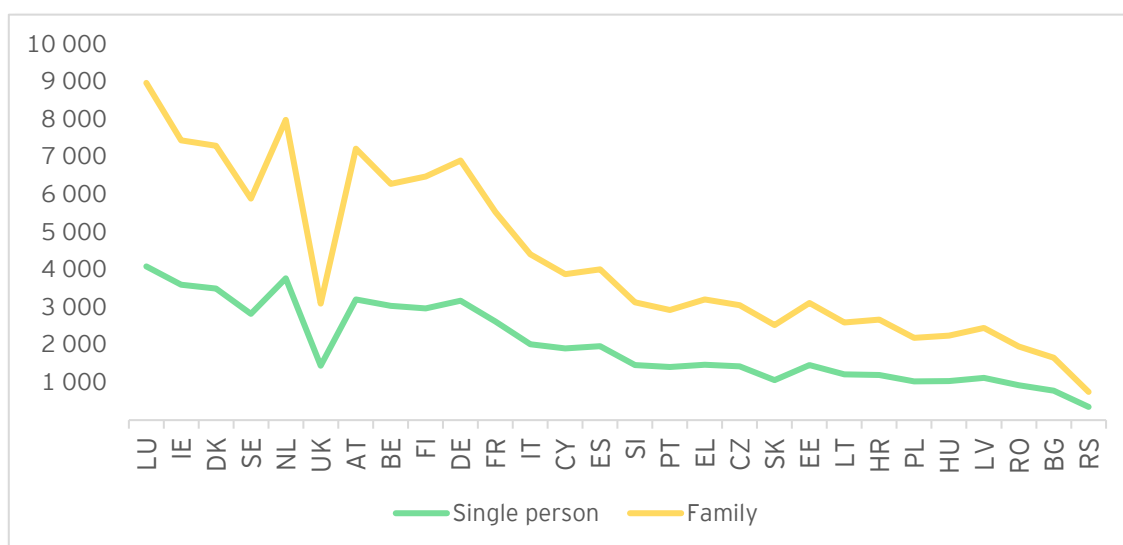


Figure 7.3 Average monthly income of individuals and families (in euros)

7.5 Comparison of Rankings

Figure 7.4 shows that Serbia has a higher rank of average monthly income of individuals compared to the rank of the share of the total excise burden on the on-trade beer price. Therefore, Serbia has a relatively low disposable income and a high excise burden on the on-trade beer price compared to European Union countries.

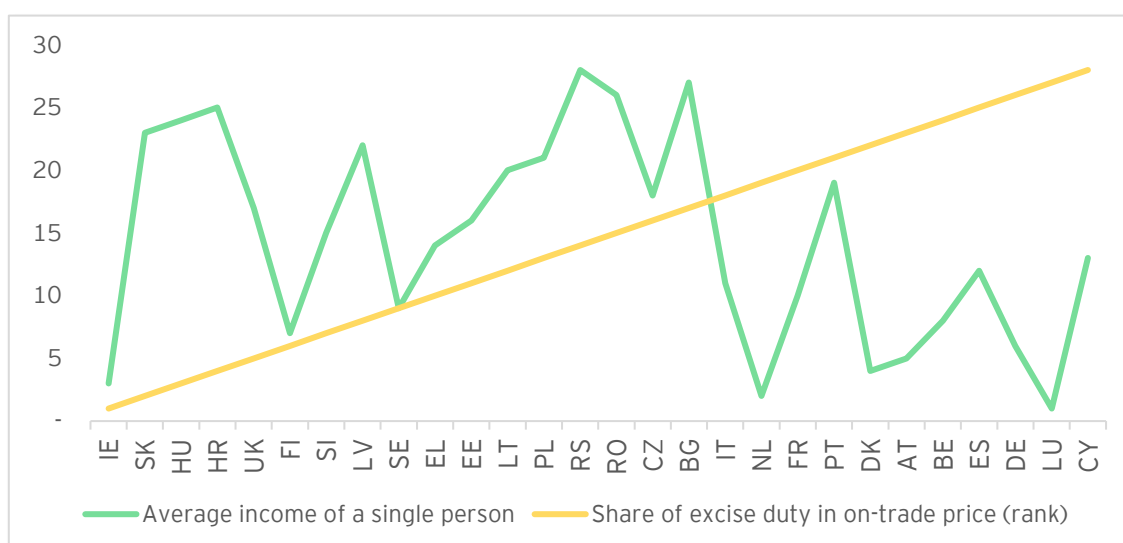


Figure 7.4 Ranking of countries by average individual income and share of excise duty in on-trade price

Economic Impact of the Serbian Brewing Sector

Figure 7.5 shows the magnitude of differences in ranking between the monthly incomes of individuals and the share of the total excise burden in the on-trade beer price. Based on the graph, we can conclude that the Republic of Serbia has the largest negative gap after Slovakia, Croatia, and Hungary, and is on par with Latvia, meaning that the difference between the income rank and the total excise burden on the on-trade beer price in our country is among the largest compared to the countries analyzed. Notable are countries like Sweden and Finland, where the rank of the total excise burden corresponds to the rank of average individual incomes.

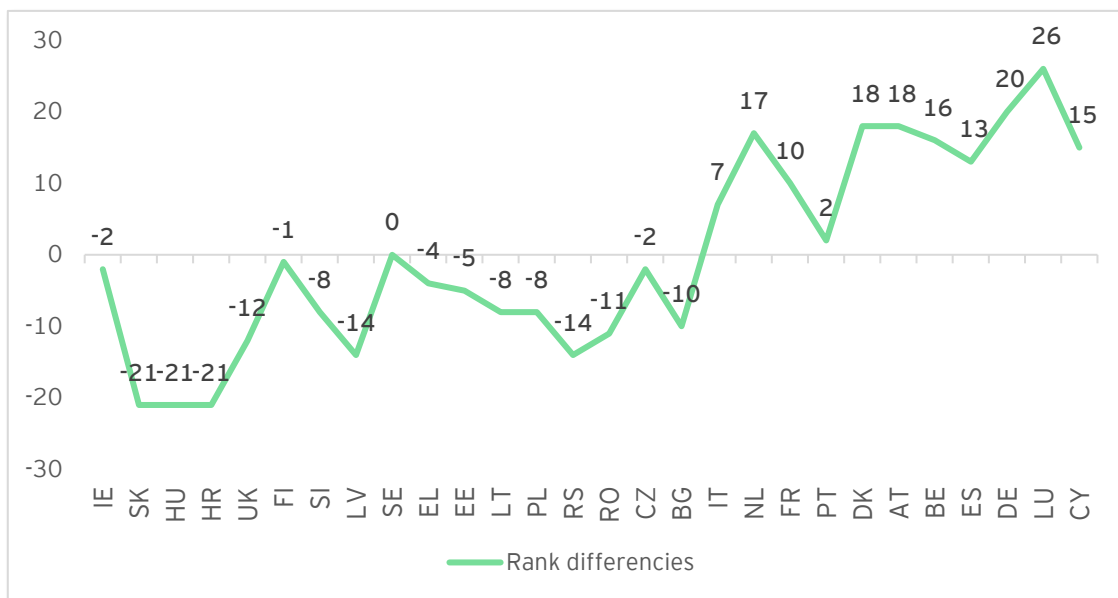


Figure 7.5 Differences in ranking of average individual income and on-trade beer price

Figure 7.6 shows that the Republic of Serbia belongs to the group of countries that have a higher rank of average family monthly incomes than the rank of the share of the total excise burden in the off-trade beer price, which also leads us to conclude that our country has a relatively low level of wages and a high excise burden on the off-trade beer price compared to European Union countries.

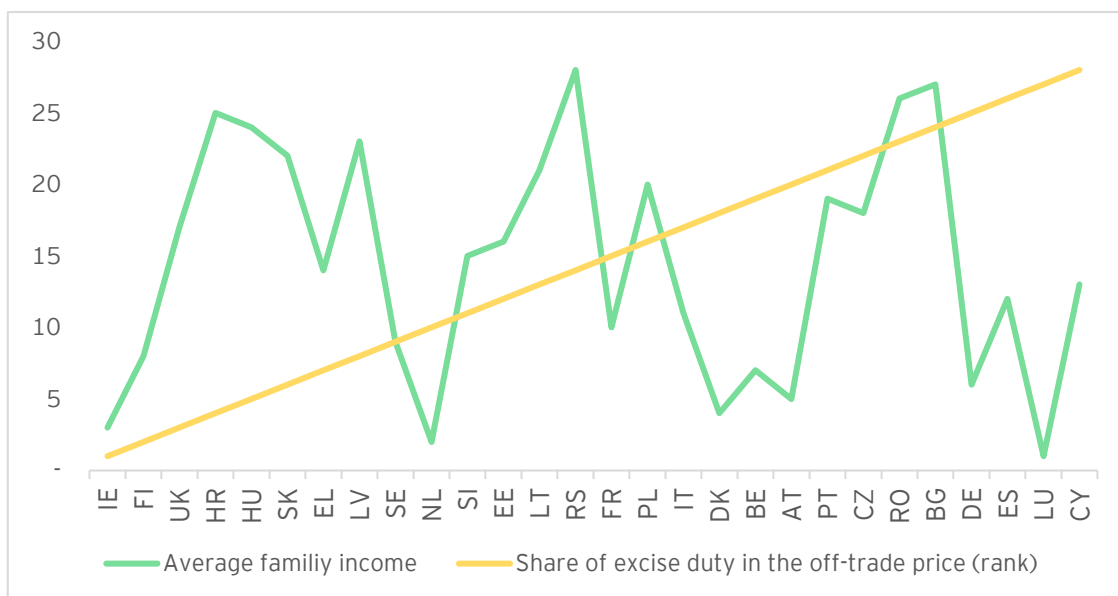


Figure 7.6 Ranking of countries by average family income and share of excise duty in on-trade price

Figure 7.7 shows the magnitude of differences in ranking between the monthly incomes of families and the share of the total excise burden in the off-trade beer price.

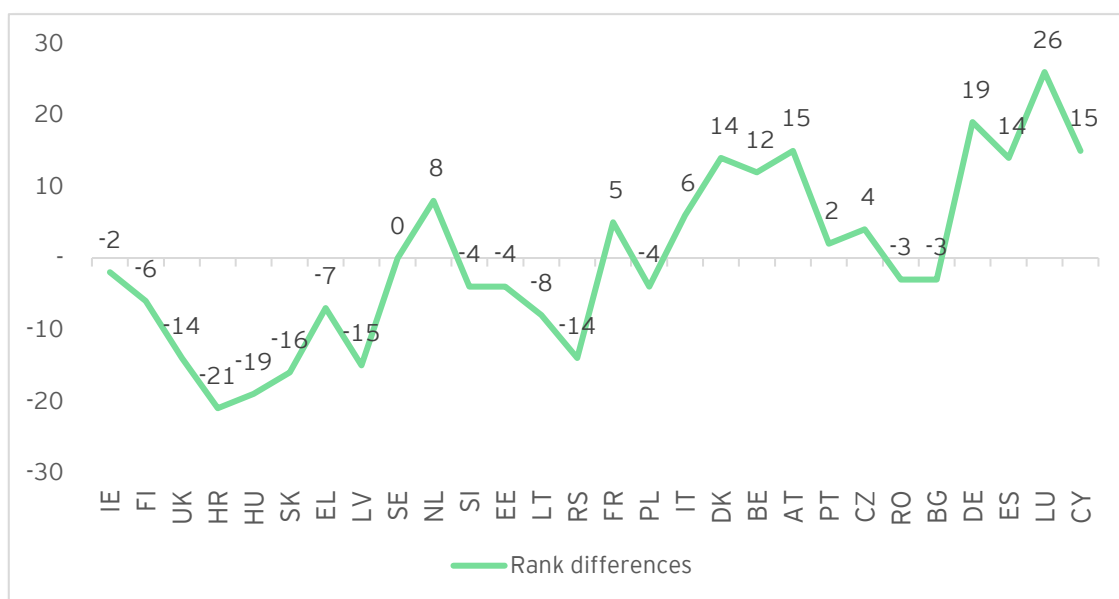


Figure 7.7 Differences in ranking of average family income and off-trade beer price

Based on the graph above, we can conclude that the Republic of Serbia has the fifth largest negative gap, and is on par with the United Kingdom, meaning that the difference between the rank of average monthly family incomes and the total excise burden on the off-trade beer price in our country is among the largest compared to the countries analyzed. Notable are countries like Sweden, Ireland, and Portugal, where the rank of the total excise burden corresponds or is approximately equal to the rank of average individual incomes.

7.6 Calculation and Collection of Excise Duties

In the Republic of Serbia, the Excise Tax Law stipulates the calculation and payment of excise duty per liter of beer that is put into circulation (for local consumption).

The method of calculating and collecting excise duty on beer and other alcoholic beverages in the European Union is harmonized by Directive 2020/262 from 2019. In the European Union, two methods are applied for calculating excise duty on beer - according to the level of extract (expressed according to the Plato degree) and according to the percentage of alcohol in the finished product (some countries determine the excise duty per liter of pure alcohol). The minimum level of excise duty on beer in European Union countries is as follows:

- ▶ €0.748 per hl per Plato degree; or
- ▶ €1.87 per hl per percentage of alcohol.

The legal framework of the European Union allow for certain deviations from the proposed excise duties, but these relate to beers with a lower alcohol content and independent breweries that produce smaller quantities of beer.

Given this, we can conclude that the method of calculating excise duty on beer in the Republic of Serbia is not aligned with the method of calculating excise duty in the European Union, and in the coming years, a change in the method of calculating excise duty can be expected as part of country's accession process to the European Union.

Considering that the Plato degree is stable and is woven into every beer process and recipe - the degree of extract is unique to beer, introducing a method of calculating excise duty based on the level of extract (Plato degree) would involve determining a base amount of excise duty for the basic Plato degree, then increasing the level of excise duty for a higher Plato degree, as well as reducing the level of excise duty for a lower

Economic Impact of the Serbian Brewing Sector

Plato degree. The Plato degree (Pt) method is in effect in more than half of the European Union countries (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Germany, Greece, and others). Relying on the fact that 99% of beer brands on the market in the Republic of Serbia fall into the category of Pt 9°-13.5° and that one Pt is equal to 0.4% alcohol, changing the method of calculating excise duty would result in the collection of an identical level of excise duty compared to the current approach.

Annex I: Methodology and Scope

This Study provides an overview of the economic impact of the brewing sector in the Republic of Serbia during the period from 2015 to 2023.

The results provided by this Study are based on calculations performed by EY. Accordingly, these results should be viewed as approximations that depend on the methodological decisions made by EY, as well as the assumptions used for this Study. For further explanations, see Annex III.

The economic impact of the brewing sector in Serbia can be divided into three different effects:

- ▶ The direct impact represents the direct economic effect generated by the operations of companies that produce beer or malt as one of the main components of beer.
- ▶ The indirect impact represents the effect that beer producers and beer production have on their suppliers. The Study specifically highlights the importance of the following industries: supply of raw materials, filling and bottling; transport and storage; utility services (electricity, gas, and water); media, marketing, and communication; equipment, production, and other industrial activities; as well as many other services/activities such as business, social, social, and personal services.
- ▶ The induced impact represents the economic effect generated by the sale of beer in off-trade and on-trade distribution channels. Effects generated by the sale of other beverages (coffee, tea, juices, alcoholic drinks, wines, etc.) are not relevant for this Study.

Direct, indirect, and induced impact on the economy is further measured in the areas of employment, added value, and government revenues.

Table I Dimensions for measuring economic impact

Dimension	Direct Impact	Indirect Impact	Induced Impact
Employment	Total number of jobs in the brewing sector	Total number of jobs in the supply sector created due to the production and sale of beer	Total number of jobs in the hospitality and retail sectors created due to the sale of beer
Added Value	Value added by brewing companies, i.e., breweries	Value added in the supply sector created due to the production and sale of beer	Value added in the hospitality and retail sectors created due to the sale of beer
Government Revenues	Production and sale of beer, income taxes and social contributions borne by employers and employees in the beer industry, and those impact on excise revenue	Income taxes and social contributions borne by employers and employees in the supply sector	VAT, taxes, and social contributions borne by employers and employees in the service and retail sectors resulting from the sale of beer, corporate taxes, and other taxes

Annex II: Data Sources

The results presented in this report originate from multiple data sources. By hierarchical order of importance, the sources are:

- ▶ Data collected directly from beer producers in the Republic of Serbia through detailed questionnaires;
- ▶ Data from the Statistical Office of the Republic of Serbia (RZS);
- ▶ Data from the Customs Administration;
- ▶ Data from additional (public) sources such as The Brewers of Europe, Eurostat, the European Commission, statistical offices of individual countries, and similar.

Questionnaires

The three largest beer producers in the Republic of Serbia - Heineken, Carlsberg, and Apatinska pivara (Molson Coors), completed a detailed questionnaire containing all key data on production, sales, costs of goods and services, investments, taxes, employees, and beer prices charged during the period from 2015 to 2023.

Statistical Office of the Republic of Serbia

Specific data from the beer sector were collected through questionnaires filled out by breweries that are members of the Serbian Brewing Association, while general economic data were collected from the Statistical Office of the Republic of Serbia. Accordingly, data for the period from 2015 to 2023 were obtained from the RZS for various statistical, economic, and demographic indicators, including turnover, added value, and average costs per employee by sectors in the Republic of Serbia, with part of the data for 2023 being subject to projection due to its later publication.

Center for Advanced Economic Studies

Due to the specific structure of the agricultural sector, certain data necessary for the preparation of the Study are not publicly available. Bearing this in mind, data on the values of key agricultural parameters for the period from 2015 to 2020 were provided by CEVES.

The Brewers of Europe

An important part of the Study also includes data published by The Brewers of Europe. These data consist of general statistical information about the beer industry of European countries, such as data on production, consumption, and direct employment in the beer sector.

Data Projection

Considering the period of the Study's preparation (from March to August 2024), a certain set of data for the year 2023 used for the Study was not publicly available or published by the Statistical Office of the Republic of Serbia, The Brewers of Europe association, or Eurostat. Therefore, data projections were made based on the time series from 2015 to 2022.

Data projections were carried out for the following indicators:

- ▶ Turnover per employee in the Republic of Serbia, Added value per employee in the Republic of Serbia, and Average employment costs in the Republic of Serbia, by sectors for the year 2023 using the geometric mean, based on data from previous years;

Economic Impact of the Serbian Brewing Sector

- ▶ The mid-year population of the Republic of Serbia represents a projection published by the Statistical Office of the Republic of Serbia;
- ▶ Gross Domestic Product (GDP) at current prices in the Republic of Serbia for the year 2023, based on the announcement by the Statistical Office of the Republic of Serbia regarding the growth rate in 2023;
- ▶ Retail prices in the on-trade and off-trade segments were provided by the breweries, based on their market research

Additionally, based on the latest available data about the agriculture sector in the Republic of Serbia, supplementary data for the period from 2015 to 2020 were compiled, which may lead to changes in aggregate data that use values by business sector categories as input. Also, all data related to the official statistics of the Republic of Serbia have been updated, as well as publications released by The Brewers of Europe, and all other publicly available information that is essential for the preparation of the Study and the assessment of the impact of the beer sector on the economy. Therefore, some data may differ from previous studies, but they more accurately reflect the state and trends in the beer sector in the Republic of Serbia. The most significant changes relate to the following data:

- ▶ Values for indirect and induced employment, i.e., employment in the procurement sector and on-trade and off-trade channels, in 2020 differ from the previous study due to the replacement of projected data with official economic indicators published by the Statistical Office of the Republic of Serbia.
- ▶ Values for the average beer consumption *per capita* in 2020 differ from the previous study due to the replacement of projected data with the official population figure published by the Statistical Office of the Republic of Serbia. Also, the average beer consumption *per capita* in European countries in 2020 has been updated in accordance with the new publication by The Brewers of Europe.
- ▶ The added value by sectors related to the production, packaging, and sale of beer in 2020 has also been changed in accordance with the new labor productivity indicator published by the Statistical Office of the Republic of Serbia.
- ▶ Values for the total beer production, beer production *per capita*, and direct employment in the beer sector, by countries, have been updated in accordance with the new publication by The Brewers of Europe.
- ▶ Values for the total purchases of breweries in the period 2015-2020 have been partially changed due to the application of more detailed segmentation and distribution of brewery costs by sectors in which goods and/or services were procured.

Annex III: Variables and Estimates

The presented results are reliable because all calculations are based on primary data from the largest beer producers in the Republic of Serbia and the official statistics of the country. However, certain results related to the economic impact of the beer sector are based on estimates derived from a model created by EY. Below, we present how these variables were estimated, focusing on:

- ▶ The employment effect;
- ▶ The added value generated by the production and sale of beer;
- ▶ Government revenues generated due to the production and sale of beer.

Employment Effect

The effect of direct employment indicates the number of employees in the beer sector. Data on direct employment were collected from questionnaires filled out by beer producers.

The effect of indirect employment refers to employment generated in the supply sector associated with the production and sale of beer. The starting point in estimating indirect employment is the impulse in the supply sector that arises from the procurement of the beer sector. The indirect impulse can be represented by summing all the costs that breweries have paid to their suppliers, separating them into different industrial sectors. Once the indirect impulse of each sector is identified, it is divided by the parameter “turnover per employee” to obtain the indirect employment for each sector, and then, by summing the indirect employment for each sector, the total indirect employment is obtained. The values of the average turnover per employee by sector were taken from the Statistical Office of the Republic of Serbia for the period 2015-2022.

Regarding indirect employment, the Study identified the impact of seven different sectors, but since the Statistical Office of the Republic of Serbia follows the local classification of activities (KD2010), the mapping of sectors was performed as follows:

- ▶ Agriculture (A - Agriculture, forestry, and fishing);
- ▶ Utilities (E - Water supply, sewerage, waste management, and remediation activities, and D - Electricity, gas, steam, and air conditioning supply);
- ▶ Packaging and bottling and Manufacturing and equipment (C - Manufacturing);
- ▶ Transport and storage (H - Transportation and storage);
- ▶ Media, marketing and communications (J - Information and communication);
- ▶ Other services (L - Real estate, M - Professional, scientific and technical activities and N - Administrative and support service activities).

It is important to note that data on agriculture and the value of economic indicators in this sector are not available from the Statistical Office of the Republic of Serbia and were provided by CEVES for the period from 2015 to 2020, while data for the period 2021-2023 are projections made by EY.

The effect of induced employment resulting from the sale of beer in the service and retail sector was estimated in a similar manner as indirect employment. The starting point for estimating induced employment is the value of beer consumption. It is important to note that, when calculating induced employment, this Study considers only the consumption of locally produced beer. Data from questionnaires were used to calculate the value of beer consumption for on-trade and off-trade channels. The next two steps are estimating the value of consumption excluding VAT for both distribution channels and dividing by the appropriate average turnover per employee. As before, the values of average turnover per employee were taken from the Statistical Office of the Republic of Serbia. The industrial sectors used for on-trade and

Economic Impact of the Serbian Brewing Sector

off-trade distribution channels are I - Accommodation and food, and G - Wholesale and retail trade, repair of motor vehicles and motorcycles, respectively. This approach gave us an estimate of the number of jobs created from on-trade and off-trade distribution channels. Summing everything up, we obtain the total effect of induced employment.

Added Value Generated from the Production and Sale of Beer

Direct added value in the beer sector was obtained through questionnaires filled out by breweries, data provided by CEVES, and from the website of the Statistical Office of the Republic of Serbia.

Indirect and induced added value is the added value that arises as a result of the production and sale of beer and was estimated by multiplying the added value per employee for each supply sector, on-trade and off-trade channels, by the previously estimated number of jobs in these sectors. The added value per employee was taken from the Statistical Office of the Republic of Serbia and CEVES, and in the agriculture sector, it was estimated for the period 2021-2023. Adding the added value of the beer sector, estimated using questionnaires, to the indirect and induced added value, gives us the total added value generated from the production and sale of beer.

Government Revenues from the Production and Sale of Beer

Government revenues from the beer sector consist of three segments:

- ▶ Data on revenues from excise taxes and other taxes were obtained from questionnaires and include payments to the state that arose as a result of local production and distribution of beer, and as such do not include revenues from excise taxes and other taxes that arose from the import and distribution of imported beer.
- ▶ VAT revenues obtained from the sale of beer were calculated by multiplying consumer expenditures on beer in on-trade and off-trade activities (excluding VAT) by the applicable VAT rate.
- ▶ Revenues associated with wages for breweries were obtained through questionnaires, while revenues from the supply sector, on-trade, and off-trade sectors were calculated by multiplying staff costs by implicit tax rates. Personnel costs in the beer sector were taken from the Statistical Office of the Republic of Serbia and CEVES websites. Personnel costs in the procurement, service, and retail sectors were calculated by multiplying indirect and induced employment by the average employment costs. Tax rates on income and social security contributions were taken from the Personal Income Tax Law and the Law on Mandatory Social Insurance. The implicit tax rate is the percentage of employment costs consisting of taxes and contributions. As such, it represents the average ratio of income tax, contributions charged to employees, and contributions charged to the employer.

It is important to note that for the purposes of the Study and the analysis of excise trends in 2021, an excise duty of 26.44 dinars was used. Specifically, the excise tax on beer amounted to 26.10 dinars until February 14, 2021, when it was increased to 26.44 dinars. Given that this excise value remained until the end of 2022, it was used in the calculations. Additionally, we emphasize that for the purposes of the Study and the analysis of excise trends in 2023, we used an excise duty of 28.55 dinars, which has been in effect since October 1, 2023.

Annex IV: Exchange Rates

Considering that most of the data in the Study pertains to the period from 2015 to 2023, the calculations used the average annual exchange rates published by the National Bank of Serbia.

Table II Exchange rates used in the study

Exchange rate	2015	2016	2017	2018	2019	2020	2021	2022	2023
RSD/EUR	120.74	123.10	121.40	118.28	117.86	117.58	117.57	117.46	117.25

Source: The National Bank of Serbia

About EY

EY is a global leader in assurance, tax, transaction, and advisory services. Worldwide, more than 395,000 of our employees are united by our shared values and an unwavering commitment to quality. We develop outstanding leaders who work together to fulfill our obligations to all those who rely on us.

EY refers to the global organization of one or more member firms of EY Global Limited, each of which is a separate legal entity. EY Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit ey.com/rs.

Ernst & Young Consulting d.o.o. Beograd
8a Vladimira Popovića, 11070 Belgrade, Serbia.

© Ernst & Young Consulting d.o.o. Beograd 2024.

Published in the Republic of Serbia.

All rights reserved.

This publication contains information in a condensed form and is therefore intended as a general guideline. This publication is not a substitute for detailed research or the provision of expert opinion. Neither EYGM Limited nor any other member firms of the global EY organization can accept any responsibility for any loss incurred by any person who has acted or refrained from acting as a result of any material in this publication.

www.ey.com/rs