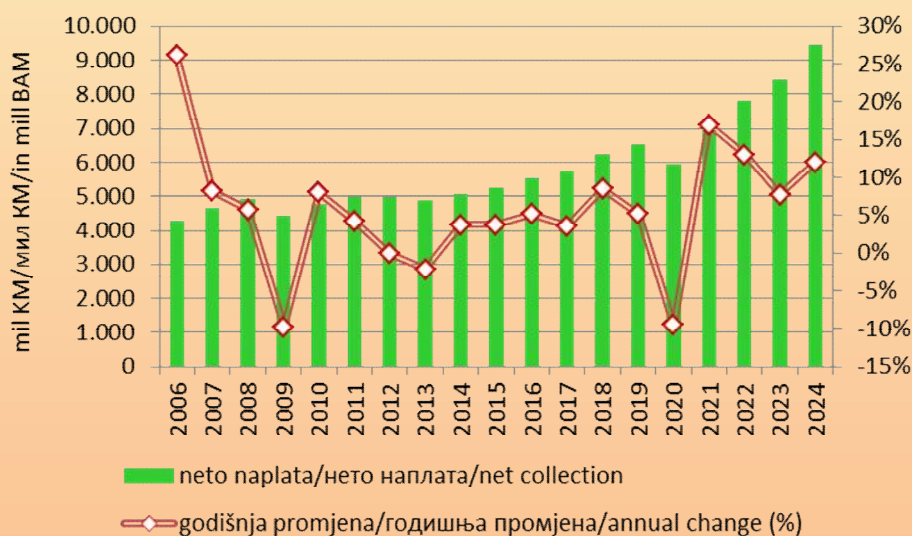




Macroeconomic Unit of the Governing Board of the Indirect Taxation Authority

ОМЈА Билтен



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With this issue

According to the preliminary cash flow report of the ITA, in June 2025, 1.034 billion BAM of gross revenues from indirect taxes was collected, which is 108.9 million BAM more than in the same month of 2024, while refund payments were 18.2 million BAM higher. Net collection of indirect taxes amounted to 861.9 million BAM, representing an increase of 11.8% compared to June 2024. In the first half of 2025, gross revenues from indirect taxes amounted to 5.748 billion BAM. Refund payments were 69.3 million BAM higher, and net collection of indirect taxes was achieved in the amount of 4.655 billion BAM. In the first half of 2025, net revenues from indirect taxes increased by 5.8%, or by 256.3 million BAM more compared to the same period in 2024.

Chart 1

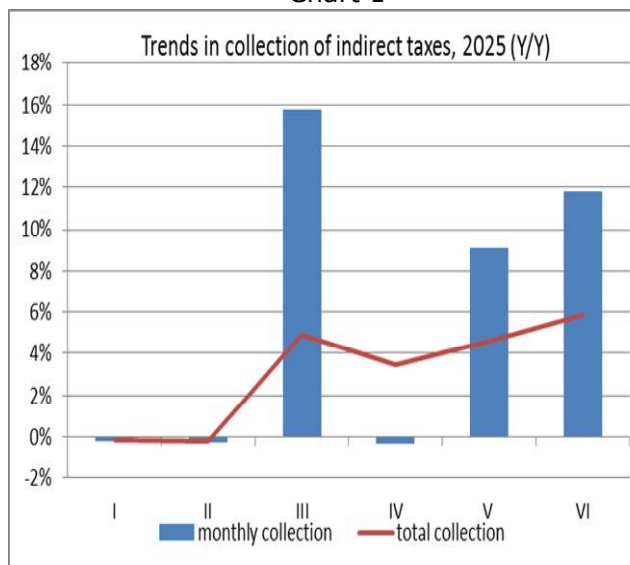
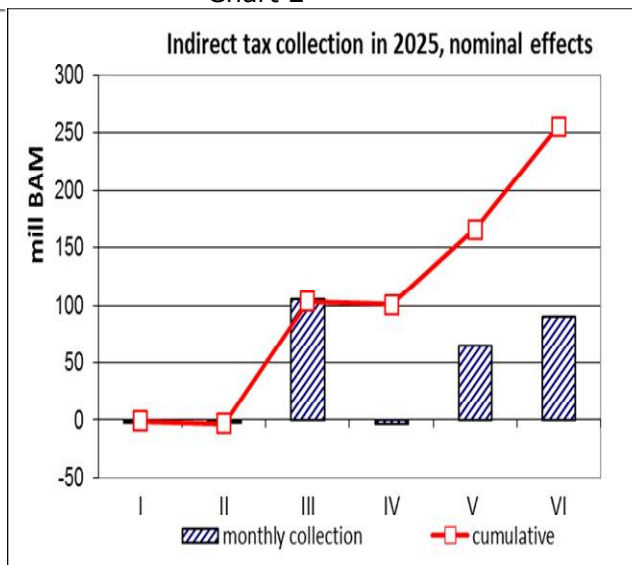


Chart 2



The comparative review showed two trends in the net collection of indirect taxes. Of the first four months of 2025, negative monthly growth was achieved in even three months, and the cumulative growth rate was 3.5%. However, very high growth rates were achieved in May and June 2025, which increased the cumulative rate by 2.3 p.p. (Chart 1). Strong oscillations in collection in the first half of the year are also indicated by the fact that of the total net effects of growth in indirect tax revenues in the first half of 2025, as much as 40% was achieved in March, 35% in June, and the remaining 25% in May (Chart 2).

Dinka Antić, PhD
Head of Unit

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Analysis of revenues from excise duty on non-alcoholic beverages and current trends

(Author: Mirjana Popović, expert advisor - macroeconomist)

Introduction

Excise duties represent one of the most important sources of public revenue in Bosnia and Herzegovina (hereinafter: BiH), with an important fiscal and regulatory role. In addition to the basic function of generating revenue for the budget, excise duties are often used as an instrument to influence consumer habits, especially in areas related to public health and environmental protection. Non-alcoholic beverages, as a widely consumed product category, occupy a significant place in the excise taxation system in the country.

Through a quantitative analysis of the available data, key trends, seasonal fluctuations and their impact on the dynamics of collection will be identified below. The analysis of these indicators creates a basis for a better understanding of the effects of excise policy in this sector, as well as space for identifying potential challenges and recommendations for improving the collection system. Given the growing importance of fiscal stability and the need for more efficient collection of public revenues, such an analysis also has practical significance in the context of creating future policies in the field of indirect taxation.

Summary

The analysis is a continuation of previously published analyses¹, which aims to conduct a detailed analysis of the collection of revenues from excise duty on non-alcoholic beverages in BiH through a three-fold timeframe:

- Annual collection in the period 2021²-2024³ and the annual growth rate for the period 2022-2024 of total revenues from excise duty on non-alcoholic beverages, revenues from excise duty on imported and domestic non-alcoholic beverages.*
- Quarterly collection in the period first quarter (Q1) 2021–first quarter (Q1) 2025⁴ and the quarterly growth rate for the period first quarter (Q1) 2022–first quarter (Q1) 2025 of total revenues from excise duty on non-alcoholic beverages, revenues from excise duty on imported and domestic non-alcoholic beverages.*
- Monthly collection in the period January 2021-April 2025⁵ and the monthly growth rate for the period January 2022–April 2025 of total revenues from excise duty on non-alcoholic beverages, revenues from excise duty on imported and domestic non-alcoholic beverages.*

1. Annual trends in revenues from excise duty on non-alcoholic beverages

Total excise revenues have a large share in total indirect tax revenues. However, the share of total excise revenues on non-alcoholic beverages in total excise revenues on an annual basis in the four

¹ More on the policy of taxation of non-alcoholic beverages and the collection of revenues from excise duties on non-alcoholic beverages in: Popović, M. (2022). "Analysis of collection of revenues from excise duties on non-alcoholic beverages". MAU bulletin no. 205/206. More about trends in the collection of these revenues and current trends in: Popović M. (2023 and 2024) "Analysis of revenue collection from excise duties on non-alcoholic beverages and current trends". MAU bulletin no. 217/218 and 229/230.

² Due to the emergence of the Covid-19 pandemic, 2020 is not relevant for comparison.

³ Latest available annual data

⁴ Latest available quarterly data

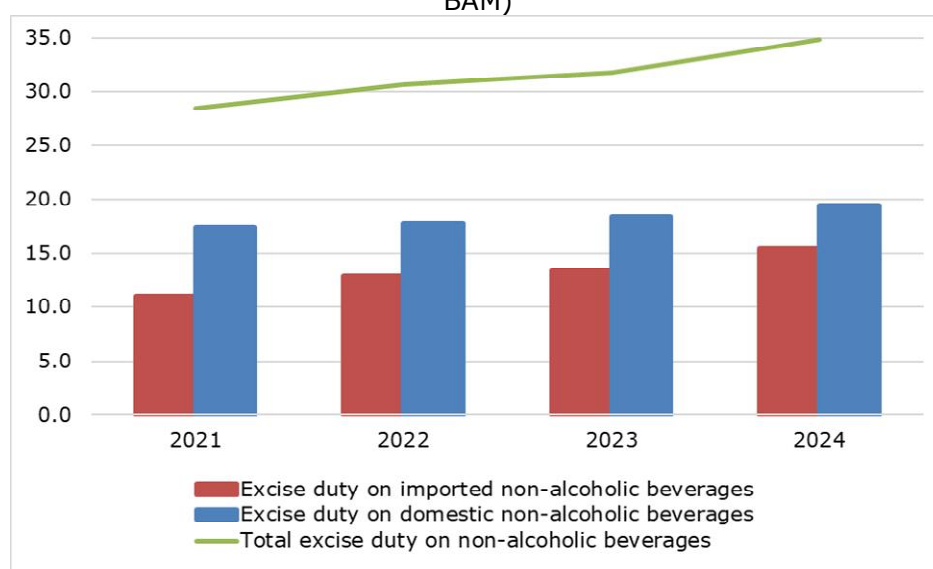
⁵ Latest available monthly data

years under review can be considered relatively small⁶ compared to excise revenues on other excise products such as tobacco products, alcoholic beverages and fuel.

Chart 1 shows the annual trend in excise revenue on non-alcoholic beverages in BiH for the period 2021-2024, in millions of BAM. Total excise revenue is shown, as well as their structure by product origin - revenue generated from imported and revenue generated from domestic non-alcoholic beverages. This division provides a more detailed insight into the dynamics of the market and the contribution of individual segments to the formation of total excise revenue.

Through chart analysis, it is possible to identify trends in growth or decline in collection, differences in the fiscal contribution of domestic and imported production, as well as the potential impact of economic, regulatory or consumer factors on annual variations. These data provide a basis for further research into the causes of changes and the effectiveness of excise policy in the non-alcoholic beverages sector.

Chart 1. Annual collection of revenues from excise duty on non-alcoholic beverages (in millions of BAM)



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

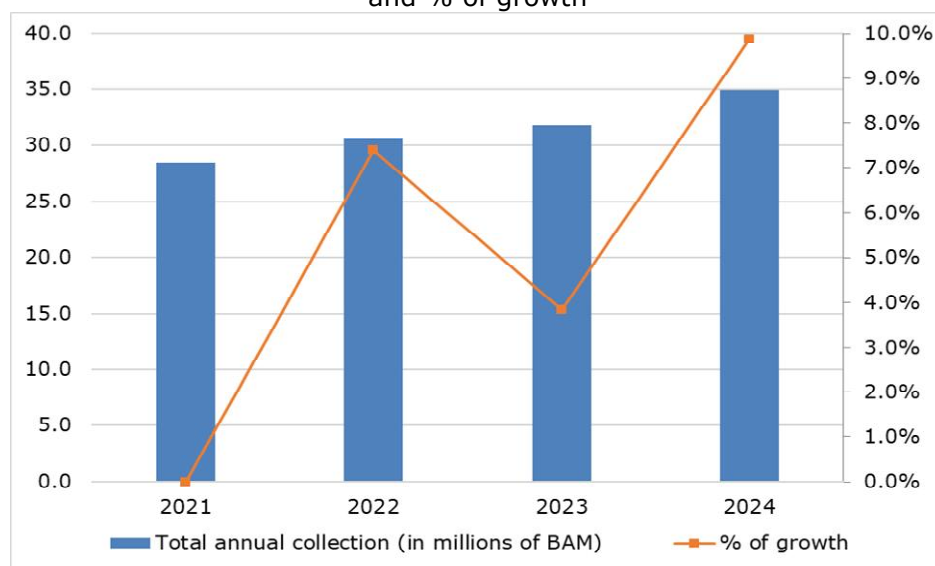
In the observed period, excise revenues on non-alcoholic beverages in BiH recorded a clear growth trend, both in total amounts and in segments of revenues from imported and domestic products. During 2024, a record level of collection was achieved since the establishment of the Indirect Taxation Administration, indicating positive developments in several aspects, such as the growth of consumption of non-alcoholic beverages, rising living standards and improved efficiency in revenue collection. The simultaneous growth of domestic and import collection indicates that neither segment is crowding out the other, rather, the overall market is growing, with both domestic and foreign brands finding their place, the number of products is increasing, including new flavors, functional beverages (vitamin water, energy drinks, etc.), which attract new consumers and increase the frequency of purchases. Trend analysis suggests that the non-alcoholic beverage sector, although it does not have a large share in total excise revenues, is becoming increasingly significant in their structure, opening space for continuous evaluation of fiscal policy in this domain.

⁶ These revenues contribute 1.9% to total excise revenue annually in the period 2021-2024.

1.1. Annual trends in total revenues from excise duties on non-alcoholic beverages

Chart 2 shows the annual collection of total revenues from excise duty on non-alcoholic beverages for the period 2021-2024, in millions of BAM (left vertical scale) and the annual growth rate of these revenues in the period 2022-2024 (right vertical scale).

Chart 2. Annual collection of total excise revenue on non-alcoholic beverages (in millions of BAM) and % of growth



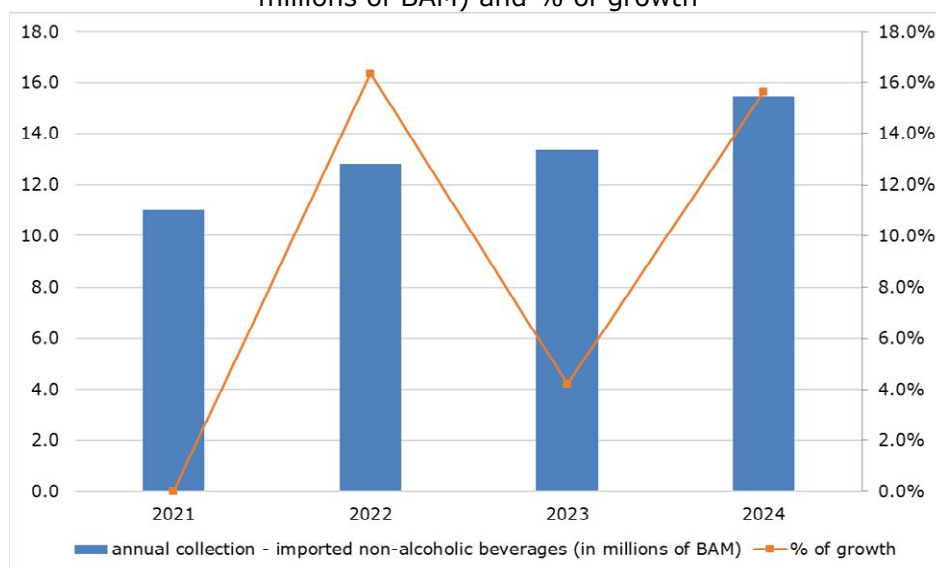
Source: Data from the Indirect Taxation Authority of BiH, MAU overview

The increase in total excise revenues from non-alcoholic beverages from year to year, with simultaneous growth in both imports and domestic production, indicates a positive trend in consumption and market activity in this category. The highest growth in total excise revenue on non-alcoholic beverages in BiH was recorded in 2024 by 9.9%, while in 2023 and 2022 the collection of these revenues increased by 3.8% and 7.4%, respectively, compared to the previous year (Chart 2, % of growth). The growth in these revenues is the result of increased consumption, which indicates a general strengthening of market demand. The data indicate a stable and growing non-alcoholic beverages sector, which is a good signal for both the domestic industry and investors. This can also be an indicator of positive macroeconomic developments, such as GDP growth, higher personal consumption and market stabilization.

1.2. Annual trends in revenues from excise duty on imported non-alcoholic beverages

Chart 3 shows the annual collection of revenues from excise duty on imported non-alcoholic beverages for the period 2021-2024, in millions of BAM (left vertical scale) and the annual growth rate of these revenues in the period 2022-2024 (right vertical scale).

Chart 3. Annual collection of revenues from excise duty on imported non-alcoholic beverages (in millions of BAM) and % of growth



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

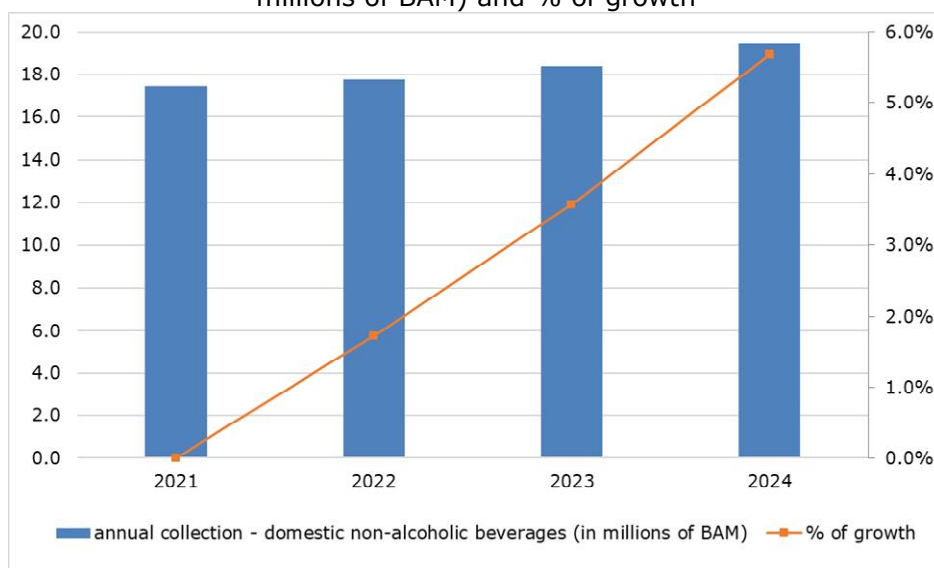
Revenues from excise duty on imported non-alcoholic beverages in BiH have recorded a significant increase in the analyzed period, with this category having a smaller share in total revenues from excise duty on non-alcoholic beverages compared to domestic production. The highest annual growth was achieved in 2022 (16.4%), followed by 2024 (15.6%), after which in 2023 these revenues increased by 4.2% compared to the previous year (Chart 3, % of growth). These data indicate a continuous increase in imports and consumption of non-alcoholic beverages from abroad during the observed period.

The increase in consumption of imported non-alcoholic beverages can be explained by a combination of different factors. Globally recognizable brands invest significant resources in marketing and distribution, thus ensuring wide availability and recognition on the market. Consumers often choose products based on habit, taste and perception of quality, and imported beverages are often perceived as a quality option. In addition, import producers offer a wide range, from different flavors to diet and energy variants. A strong distribution network also plays a significant role, which contributes to the increasingly dominant share of imported beverages in total consumption and excise revenue.

1.3. Annual trends in revenues from excise duty on domestic non-alcoholic beverages

Chart 4 shows the annual collection of revenues from excise duty on domestic non-alcoholic beverages for the period 2021-2024, in millions of BAM (left vertical scale) and the annual growth rate of these revenues in the period 2022-2024 (right vertical scale).

Chart 4. Annual collection of revenues from excise duty on domestic non-alcoholic beverages (in millions of BAM) and % of growth



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

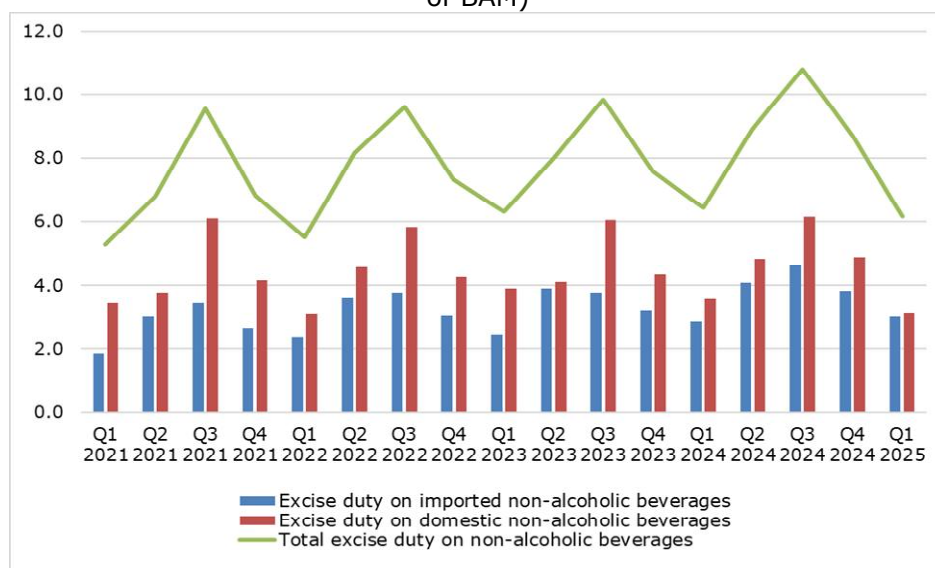
Revenues from excise duty on domestic non-alcoholic beverages in BiH are recording moderate but stable growth in the period from 2021 to 2024. Annual growth rates show a slight acceleration: 1.7% in 2022, 3.6% in 2023 and 5.7% in 2024 (Chart 4, % of growth) compared to previous years. These data indicate a gradual increase in domestic consumption of non-alcoholic beverages and the presence of a positive trend in this market segment. This trend is associated with the strengthening of consumer awareness of the importance of supporting domestic producers, the presence of domestic brands in retail chains and catering establishments, as well as a slight expansion of the assortment and availability of domestic products on the market. This category has a larger share in total revenues from excise duty on non-alcoholic beverages compared to imported production.

2. Quarterly trends in revenues from excise duty on non-alcoholic beverages

Chart 5 shows the quarterly collection of revenues from excise duty on non-alcoholic beverages for the period from the first quarter (Q1) of 2021 to the first quarter (Q1) of 2025, in millions of BAM. The chart shows the quarterly dynamics of total revenues from excise duty on non-alcoholic beverages, as well as revenues from excise duty on imported and domestic non-alcoholic beverages.

The chart shows a clear seasonal pattern, with the highest excise duty collection recorded in the third quarter of each year. This dynamic reflects the increased consumption of non-alcoholic beverages during the warmer months, especially in the summer period when demand is traditionally higher, which explains the seasonal influences that play a significant role in the movement of quarterly excise duty revenue collection on non-alcoholic beverages.

Chart 5. Quarterly collection of revenues from excise duty on non-alcoholic beverages (in millions of BAM)

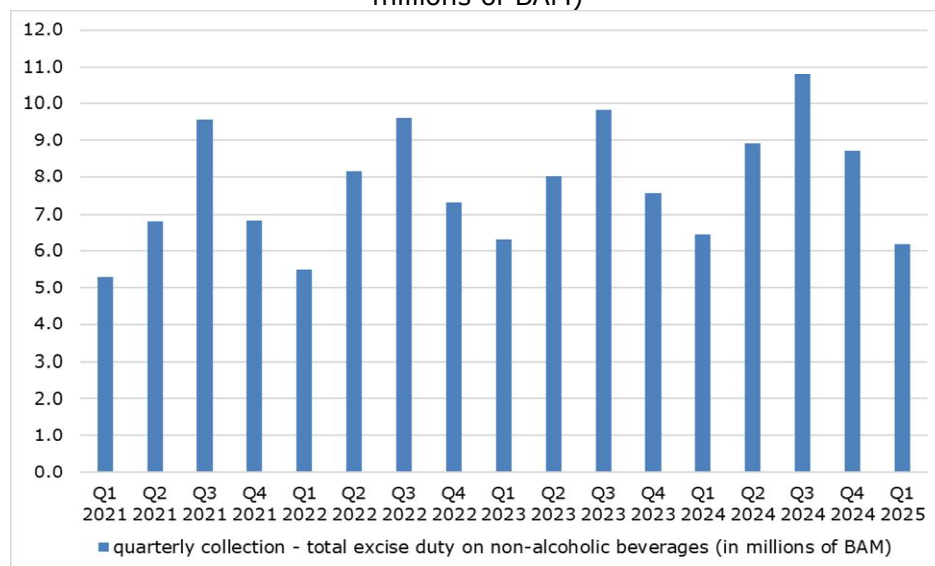


Source: Data from the Indirect Taxation Authority of BiH, MAU overview

2.1. Quarterly trends in total revenues from excise duty on non-alcoholic beverages

Chart 6 shows the quarterly collection of total revenues from excise duty on non-alcoholic beverages for the period Q1 2021–Q1 2025, in millions of BAM.

Chart 6. Quarterly collection of total revenues from excise duty on non-alcoholic beverages (in millions of BAM)

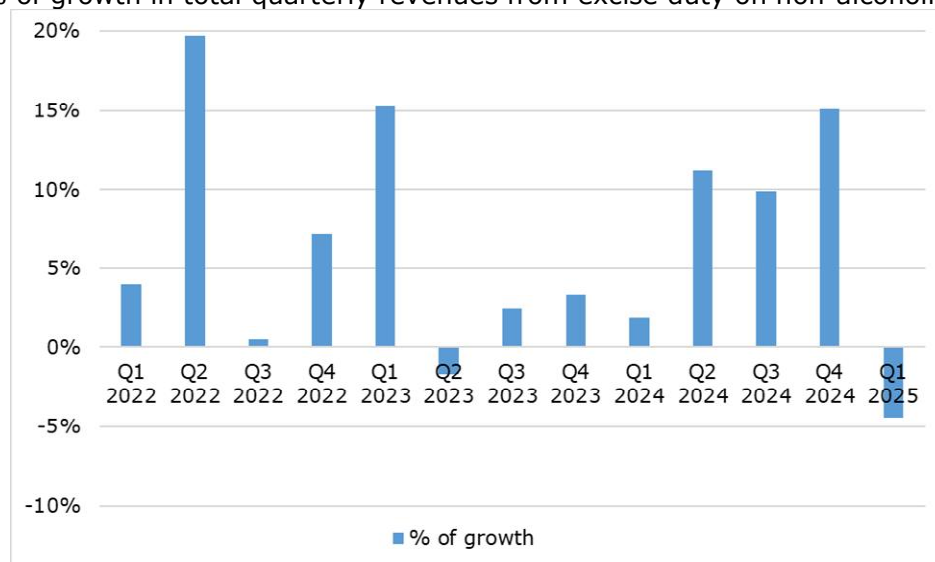


Source: Data from the Indirect Taxation Authority of BiH, MAU overview

Because of the seasonal influence, it can be seen from the chart that the collection of these revenues in the third quarters is significantly higher than the collection in other quarters. The growth rate of these revenues is shown in the following chart.

Chart 7 shows the quarterly growth rate of total revenues from excise duty on non-alcoholic beverages for the period Q1 2022–Q1 2025.

Chart 7. % of growth in total quarterly revenues from excise duty on non-alcoholic beverages



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

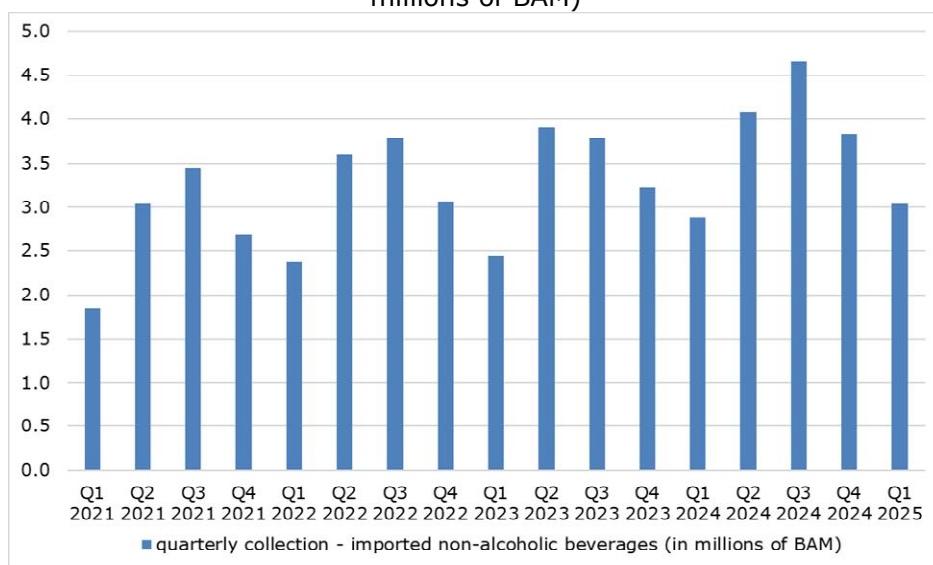
In the presented period, most quarters recorded growth rates, indicating a general trend of increasing consumption and imports of non-alcoholic beverages. The highest growth rates were recorded in the second quarter of 2022 (19.7%), the first quarter of 2023 (15.3%), and the second, third and fourth quarters of 2024 (11.2%, 9.9% and 15.1%). Exceptions to this trend are the second quarter of 2023 and the first quarter of 2025, when a decline in revenue collection was recorded, which may indicate short-term fluctuations in consumption.

2.2. Quarterly trends in revenues from excise duty on imported non-alcoholic beverages

Chart 8 shows the quarterly collection of revenues from excise duty on imported non-alcoholic beverages for the period Q1 2021–Q1 2025, in millions of BAM.

Quarterly revenues from excise duty on imported non-alcoholic beverages for the shown period pronounced seasonal fluctuations, with the highest revenues generally occurring in the third quarter, corresponding to the summer months when consumption of these products is the highest. The exception is the second quarter of 2023, when collection exceeded that of the third quarter. This anomaly can be partly explained by increased imports and changes in distribution and consumption during that period.

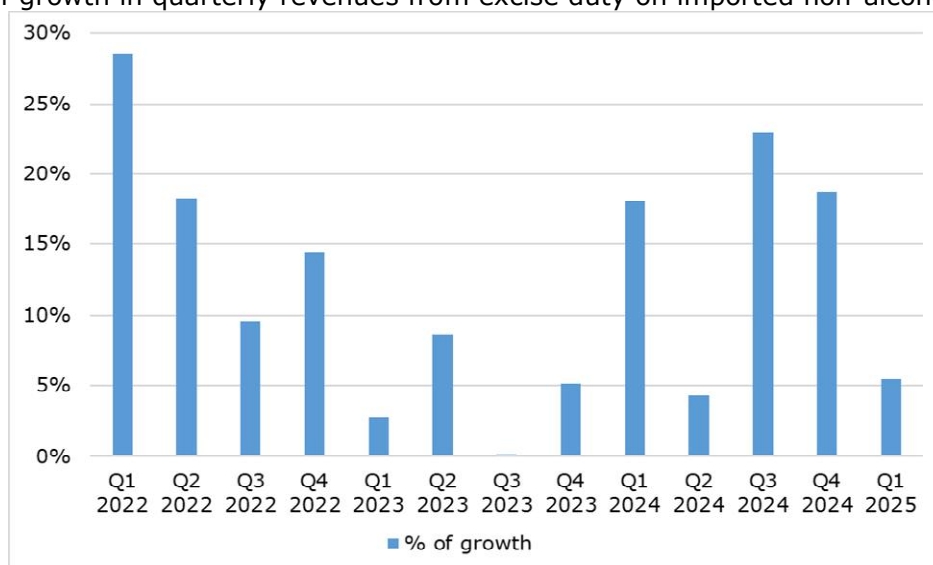
Chart 8. Quarterly collection of revenues from excise duty on imported non-alcoholic beverages (in millions of BAM)



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

Chart 9 shows the quarterly growth rate of revenues from excise duty on imported non-alcoholic beverages for the period Q1 2022–Q1 2025.

Chart 9. % of growth in quarterly revenues from excise duty on imported non-alcoholic beverages



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

The chart shows the quarterly growth rate of revenues from excise duty on imported non-alcoholic beverages, which was positive in all quarters during the observed period, indicating a stable and continuous growth of this revenue category. The highest growth rate was recorded in the first quarter of 2022 (28.5%), which can be associated with the market recovery after the pandemic and a sharp increase in consumption. High growth rates were also recorded during 2024, in the first (18.1%), third (23.0%) and fourth quarters (18.8%), which may indicate strong demand and intensive imports during that year. The lowest growth rate was recorded in the third quarter of 2023 (0.2%), which may indicate market saturation or a temporary decrease in consumption. In

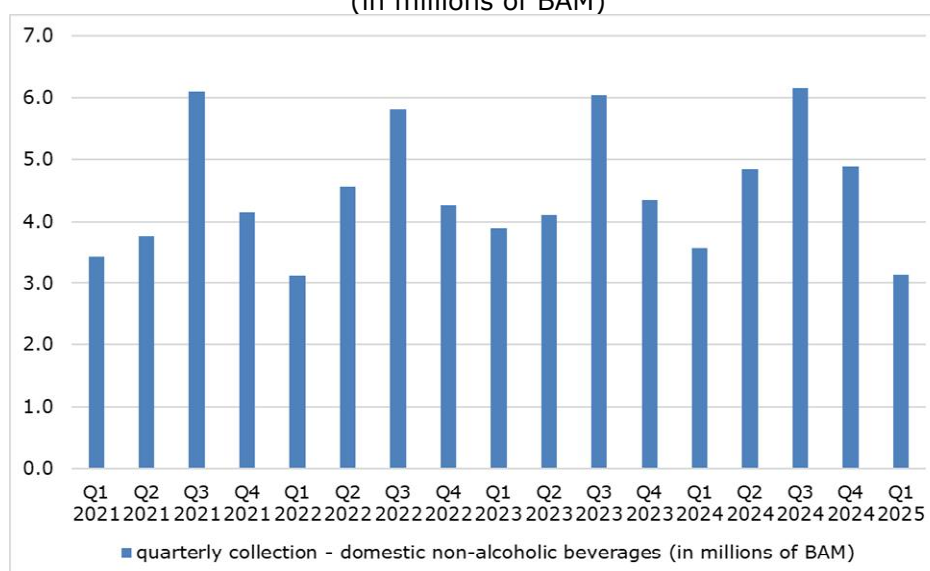
the first quarter of the current year, a growth rate of 5.4% was recorded, confirming the continuation of the positive trend, but at a somewhat more moderate pace.

2.3. Quarterly trends in revenues from excise duty on domestic non-alcoholic beverages

Since revenues from excise duties on domestic non-alcoholic beverages make up a larger part of the total excise duty collection in this segment, their dynamics largely reflect the general trend of the non-alcoholic beverages market in BiH.

Chart 10 shows the quarterly collection of revenues from excise duty on domestic non-alcoholic beverages for the period Q1 2021–Q1 2025, in millions of BAM.

Chart 10. Quarterly collection of revenues from excise duty on domestic non-alcoholic beverages (in millions of BAM)



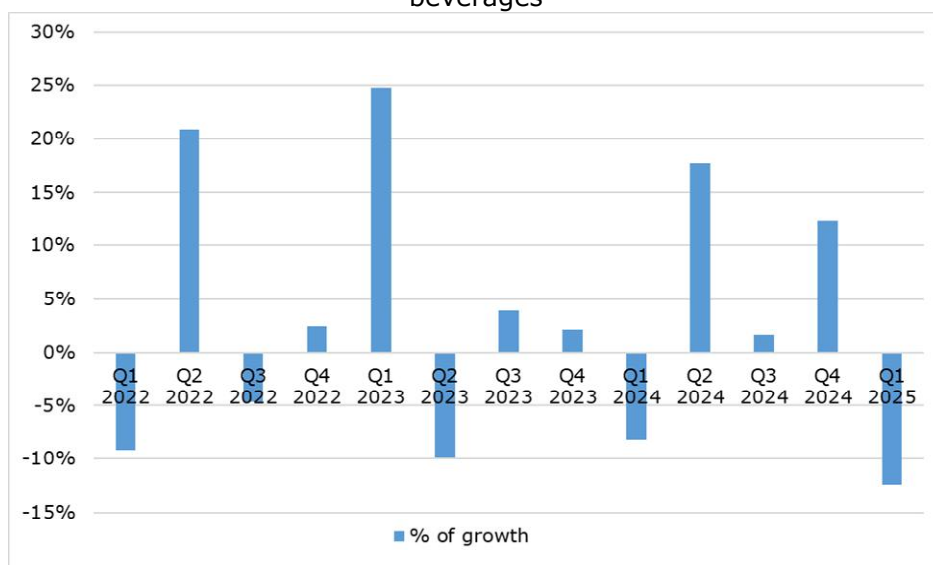
Source: Data from the Indirect Taxation Authority of BiH, MAU overview

As with the quarterly collection of total revenues from excise duty on non-alcoholic beverages and the quarterly collection of revenues from excise duty on imported non-alcoholic beverages, the chart shows seasonal fluctuations in the collection of revenues from excise duty on domestic non-alcoholic beverages in BiH. It is clearly noticeable that the highest revenues on this basis are generated in the third quarters of each year. This trend repeats year after year, and the reasons are the same - the pronounced seasonal nature of the consumption of non-alcoholic beverages, with a peak during the summer months, when the consumption of these beverages is most intense due to high temperatures and an increased number of tourists.

In the other quarters (Q1, Q2 and Q4), excise duty collection is lower, with a slight increase in the second and fourth quarters, while the lowest collection of these revenues was recorded in the first quarters, which corresponds to reduced consumption during the colder months.

Chart 11 shows the quarterly growth rate of revenues from excise duty on domestic non-alcoholic beverages for the period Q1 2022–Q1 2025.

Chart 11. % of growth in quarterly revenues from excise duty on domestic non-alcoholic beverages



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

Changes in the growth rate indicate variations in consumption and excise duty collection from quarter to quarter, which are the result of a combination of seasonal factors, economic developments and possible changes in the business environment. The instability of the growth rate from quarter to quarter also reflects external influences, such as disruptions in supply chains and general economic developments that affect consumer purchasing power.

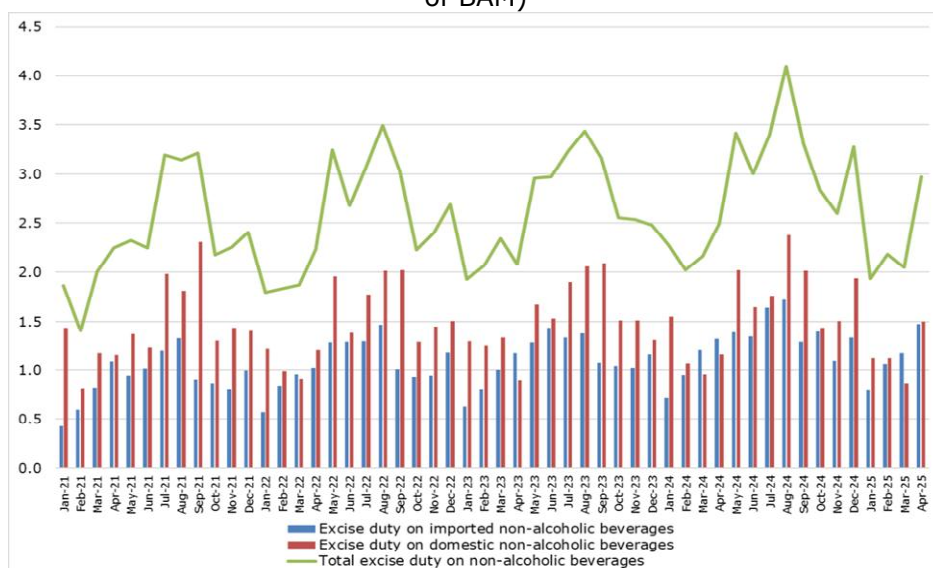
In the observed period, the largest increase in these revenues was recorded in the first quarter of 2023 (24.8%). Because of the growth in consumption of domestic products due to the economic recovery after the pandemic, the increase in the purchasing power of citizens and the increase in the prices of non-alcoholic beverages from domestic producers, the second quarter of 2022 also recorded a significant increase in the collection of these revenues of 20.8%. In the first quarter of the current year, a decrease was recorded by -12.4%, which also affected the decline in total quarterly revenues from excise duty on non-alcoholic beverages shown in Chart 7.

3. Monthly trends in revenues from excise duty on non-alcoholic beverages

This report analyses the monthly trends in revenues from excise duty on non-alcoholic beverages, in BiH. A special focus is on the separate excise revenues: imported and domestic non-alcoholic beverages. The monthly trends in revenues from excise duty on non-alcoholic beverages are presented to better understand the dynamics in this segment of public revenues. The aim of the analysis is to identify key patterns, seasonal variations and possible trends in excise revenue collection on a monthly basis, as well as to identify differences between the contributions of imported and domestic products to total revenues. The purpose of this analysis is to provide support in shaping fiscal and trade policy, enable more precise budget planning on a monthly basis and improve the understanding of consumer habits in the non-alcoholic beverages market in BiH.

Chart 12 shows the monthly trend in revenues from excise duty on non-alcoholic beverages for the period January 2021-April 2025, in millions of BAM. It shows the monthly trend in total excise revenue collection on non-alcoholic beverages in the observed period, as well as the monthly trend in excise revenue collection on imported and domestic non-alcoholic beverages.

Chart 12. Monthly collection of revenues from excise duty on non-alcoholic beverages (in millions of BAM)



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

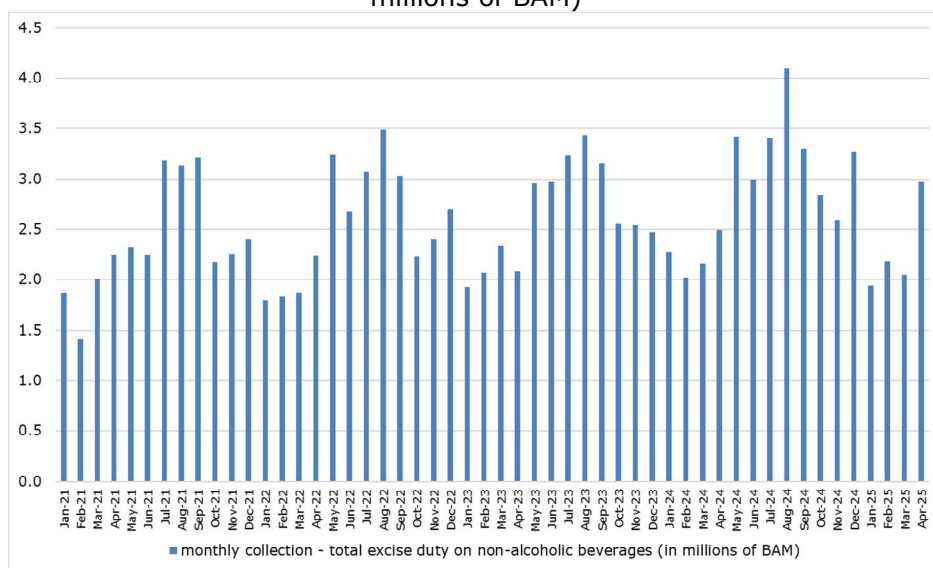
There is a pronounced seasonal pattern, with the highest revenues being generated during the summer months, consistent with increased consumption of non-alcoholic beverages in the warmer part of the year. Collections are lower at the beginning of the year (January–March), reflecting a decline in consumption. Collections are more stable and higher in the period May–September. These patterns indicate a clear seasonality in consumption. A more detailed analysis of the trends in total monthly revenues from excise duties on non-alcoholic beverages and revenues from excise duty on imported and domestic non-alcoholic beverages is presented below.

3.1. Monthly trends in total revenues from excise duty on non-alcoholic beverages

Chart 13 shows the monthly collection of total revenues from excise duty on non-alcoholic beverages for the period January 2021–April 2025, in millions of BAM.

The chart shows a pronounced seasonal nature of collection, with revenues being highest in the summer months (especially in July and August), while they are lowest during the winter period, especially from January to March each year. Higher collection of excise revenues in the summer months because of increased consumption of non-alcoholic beverages due to higher temperatures and increased outdoor activities implies that consumers are more likely to consume refreshing beverages, and there is also a rise in tourist traffic, which further stimulates sales. In contrast, in the winter months, when temperatures are lower and demand for cold beverages decreases, both sales and collection of excise duties are significantly lower. In the observed period, the highest collection was recorded in August of the previous year as a result of the peak of the tourist season, while the lowest collection was recorded in February 2021 as a result of the post-holiday lull, winter and low demand, as well as the additional impact of the Covid-19 pandemic.

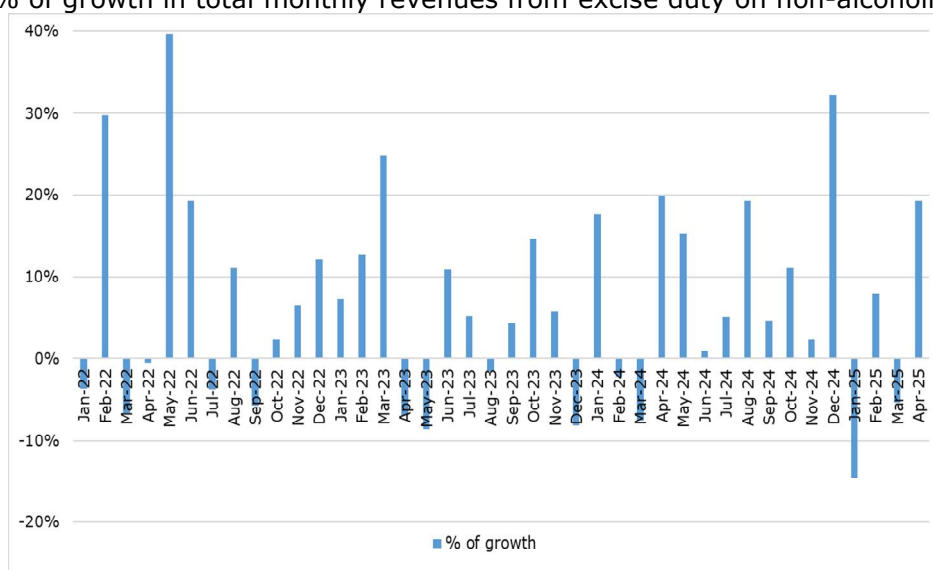
Chart 13. Monthly collection of total revenues from excise duty on non-alcoholic beverages (in millions of BAM)



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

Chart 14 shows the monthly growth rate of total revenues from excise duty on non-alcoholic beverages for the period January 2022–April 2025, compared to the same month of the previous year.

Chart 14. % of growth in total monthly revenues from excise duty on non-alcoholic beverages



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

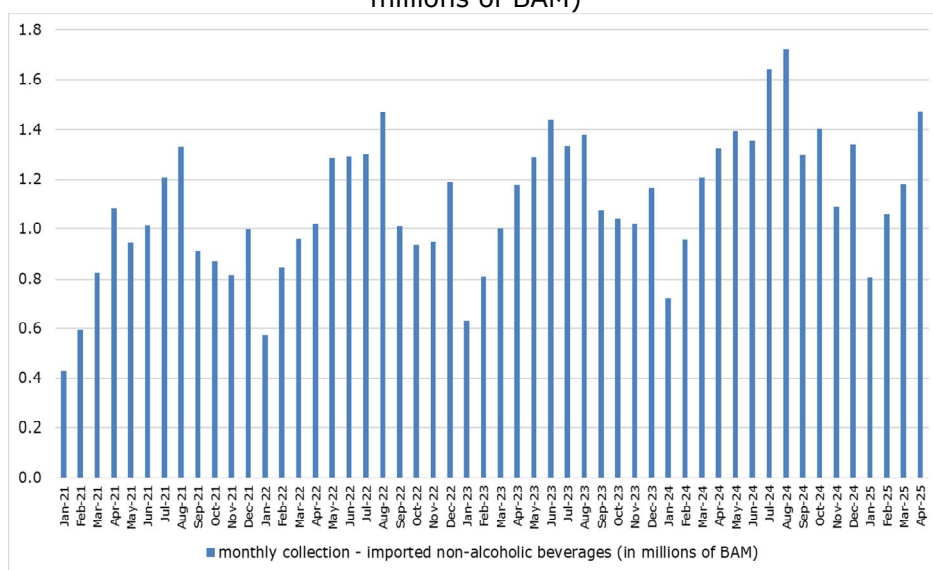
The largest increase in the collection of total revenues from excise duty on non-alcoholic beverages in the observed period was recorded in May 2022 (39.6%) and December 2024 (32.3%), compared to the same month of the previous year, while the largest decrease was recorded in January of the current year (-14.6%). This decrease is a consequence of the boycott of shopping in supermarkets at the end of January as a consumer reaction to the sharp increase in prices of basic foodstuffs and non-alcoholic beverages, which followed the increase in margins and

taxes in retail sales⁷. This boycott had a direct and measurable economic effect, especially in the consumer goods sector, including non-alcoholic beverages, where sales decreased.

3.2. Monthly trends in revenues from excise duty on imported non-alcoholic beverages

Chart 15 shows the monthly trend in the collection of revenues from excise duty on imported non-alcoholic beverages for the period January 2021–April 2025, in millions of BAM.

Chart 15. Monthly collection of revenues from excise duty on imported non-alcoholic beverages (in millions of BAM)



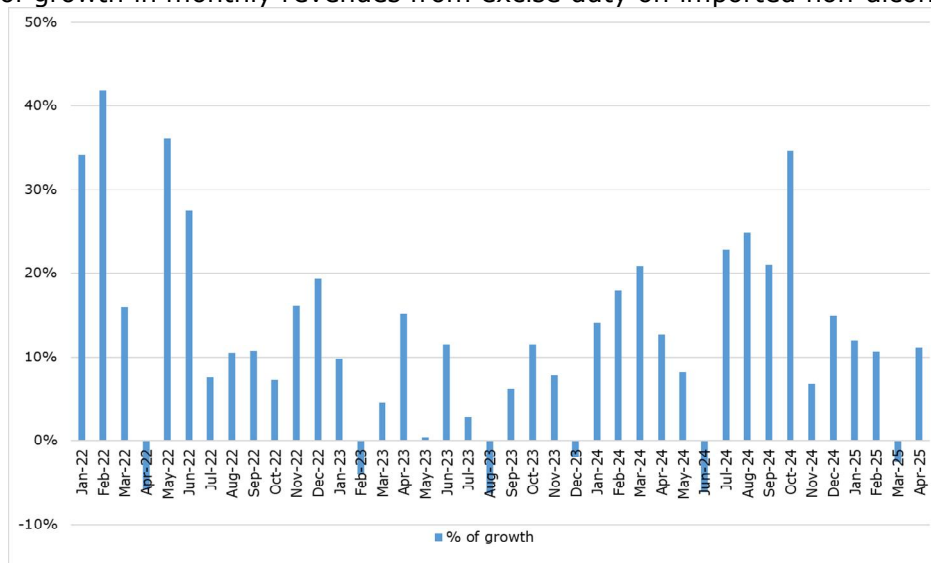
Source: Data from the Indirect Taxation Authority of BiH, MAU overview

As with total excise revenue on non-alcoholic beverages shown on a monthly basis, the highest collection of revenues from excise duty on imported non-alcoholic beverages is also in the summer months, while the lowest monthly collection of these revenues is recorded every year in January. The highest revenues in the observed period were achieved in July and August last year. In April of the current year, a surprisingly high collection of these revenues was also achieved, which is not the result of seasonal consumption but of strategic imports, market recovery after the boycott and preparations for the summer.

Chart 16 shows the monthly growth rate of revenues from excise duty on imported non-alcoholic beverages for the period January 2022–April 2025, compared to the same month of the previous year.

⁷ Namely, at the end of January 2025, a mass call for a boycott of shopping in large supermarkets across BiH was launched on social media and through non-governmental organizations. The boycott was symbolically scheduled for January 31, 2025, with the aim of putting pressure on retail chains and authorities for what citizens alleged were "unjustified price increases" and "unfair trade practices."

Chart 16. % of growth in monthly revenues from excise duty on imported non-alcoholic beverages



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

The largest increase in the collection of revenues from excise duty on imported non-alcoholic beverages on a monthly basis was recorded at the beginning of 2022 because of the easing of measures, post-pandemic recovery and changes in consumer habits, which led to increased consumption. Thus, in January of that year, an increase in collection was recorded by 34.3%, in February by 41.9%, in May by 36.1% and in June by 27.5%. In addition, a greater increase in the collection of these revenues by 34.7% was recorded in October last year as a result of market trends, promotional activities and advanced logistics preparation for the end of the year. During the observed period, no significant decrease in the collection of excise duties on imported non-alcoholic beverages was recorded that would deviate significantly and indicate a certain shock.

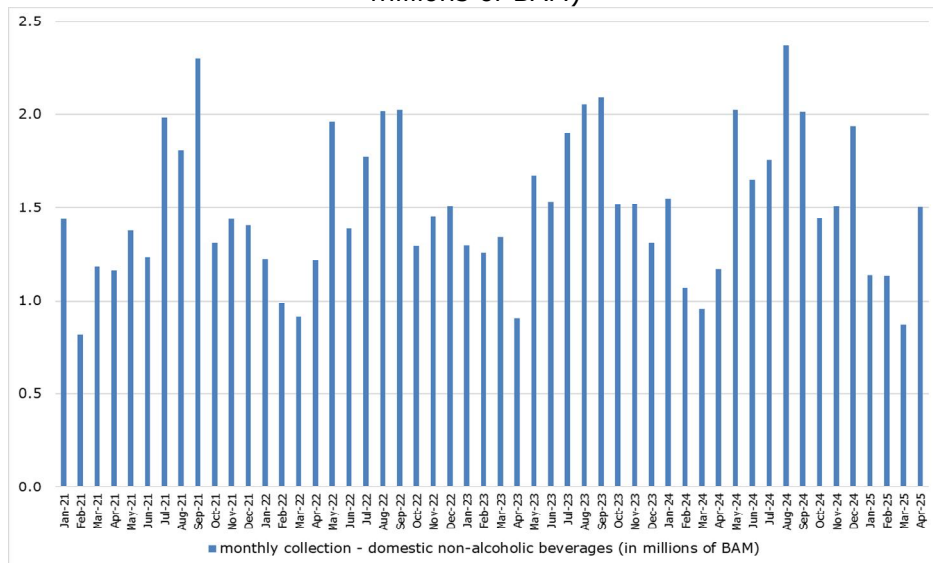
3.3. Monthly trends in revenues from excise duty on domestic non-alcoholic beverages

Chart 17 shows the monthly trend in the collection of revenues from excise duty on domestic non-alcoholic beverages for the period January 2021–April 2025, in millions of BAM.

The monthly collection of revenues from excise duty on domestic non-alcoholic beverages shows a similar seasonal pattern as the total collection, i.e. collection on imported non-alcoholic beverages with higher amounts in the summer months and lower amounts during the winter and early spring. The highest incomes were recorded in September 2021 and August 2024, while the lowest levels were recorded in February and March in several years, as well as in April 2023, indicating a steady seasonal decline in consumption in the colder months.

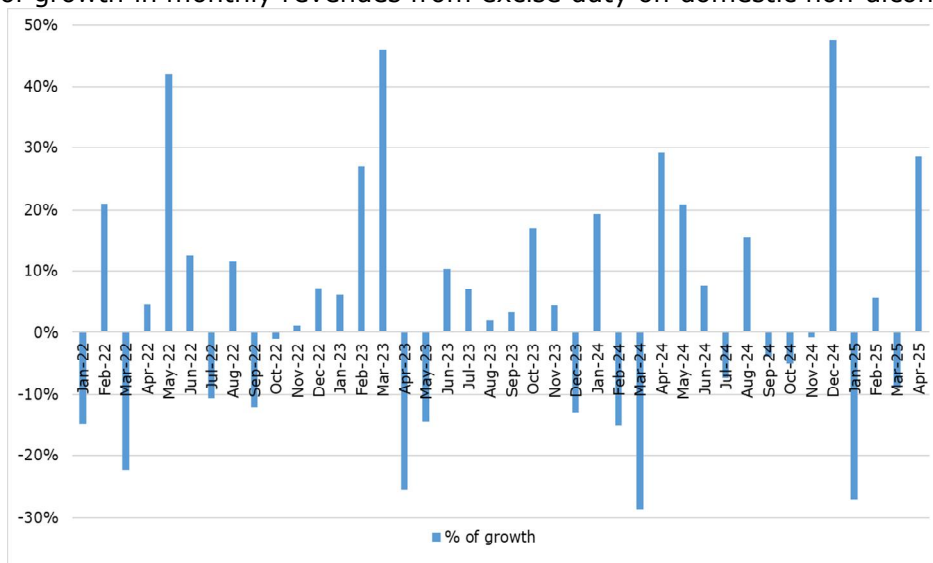
Chart 18 shows the monthly growth rate of revenues from excise duty on domestic non-alcoholic beverages for the period January 2022–April 2025, compared to the same month of the previous year.

Chart 17. Monthly collection of revenues from excise duty on domestic non-alcoholic beverages (in millions of BAM)



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

Chart 18. % of growth in monthly revenues from excise duty on domestic non-alcoholic beverages



Source: Data from the Indirect Taxation Authority of BiH, MAU overview

The highest growth was recorded in December 2024 (47.6%), March 2023 (46.8%) and May 2022 (42.0%), which can be linked to increased consumption before the holidays, strengthening distribution and successful marketing campaigns by domestic producers. On the other hand, the largest decreases were recorded in April 2023 (-25.6%), March 2024 (-28.7%) and January 2025 (-27.0%). These declines are mainly due to seasonally weaker consumption, but also factors such as bad weather, a decline in purchasing power, and in the case of January 2025, the impact of the consumer boycott that also affected the domestic non-alcoholic beverages sector. The trends show marked volatility, but follow the general seasonal dynamics and market reactions to economic and social circumstances.

Collection of VAT revenue and VAT gap in conditions of rising inflation in 2022

(Prepared by: Aleksandra Regoje, expert advisor – macroeconomist)

Introduction

Given the relatively low inflation rates over the past four decades, until the last few years there has been no major research on the relationship between inflation and public finances. The global rise in inflation after 2020 has once again highlighted the interactions between inflation and public finances. Inflation started to rise as the coronavirus crisis ended, due to the effects of the lifting of restrictions after the end of the pandemic. The pandemic caused disruptions in the global supply chain and reduced production, leading to shortages of goods and services. With the lifting of restrictive measures, demand grew sharply, exceeding available supply and increasing prices. In 2022, all Member States of the European Union (EU-27) recorded high inflation rates, with a third of them having rates in the range of between 10% and 20%. Such high inflation rates resulted from several factors, but primarily the sharp increase in energy prices due to the war in Ukraine, which had disrupted energy supply chains. High inflation rates in 2022 and 2023 have once again brought into focus the following questions: what impact does high inflation have on fiscal aggregates, how does inflation affect tax systems and public finances, and the impact of inflation on certain types of public revenues.

Given that value added tax (VAT) is one of the main sources of revenue for general governments of the EU-27 Member States, the issues of how inflation has affected these revenues and how it has affected the efficiency of their collection are particularly salient. According to Eurostat, in 2024, VAT revenues of general governments in the EU-27 amounted to 1,282.1 billion euros, while the ratio of VAT revenues to GDP was 7.1%. Given this, efficient collection of VAT revenues is essential for financing public goods and services and for ensuring the financial stability of governments.

This article analyses VAT collection in the EU-27, **with a focus on 2022**, which is characterized by significant global turbulences and **high inflation rates**. In addition, the latest full estimates of the VAT gap, as a measure of the efficiency of VAT revenue collection, calculated by the European Commission, are available for this year. The first part of the article presents annual inflation rates in the EU-27, while the second presents the main impacts of inflation on government finances and VAT. The third part of the article analyses factors driving VAT revenue dynamics in the past period: changes in the tax base, VAT collection efficiency and tax policy. The dynamics of the main factors that conditioned VAT revenue collection in the EU-27 in 2022 can be found in the Summary at the end of the article.

I Inflation rates in the EU-27

Annual inflation rates (harmonized index of consumer prices - HICP) in the EU-27 in the period from 2015 to 2020 ranged from 0% to 2%. According to Eurostat data,⁸ the inflation rate in 2021 was 2.9% in the European Union (EU-27), which is 1.9 p.p. higher than the average for the period from 2015 to 2020.

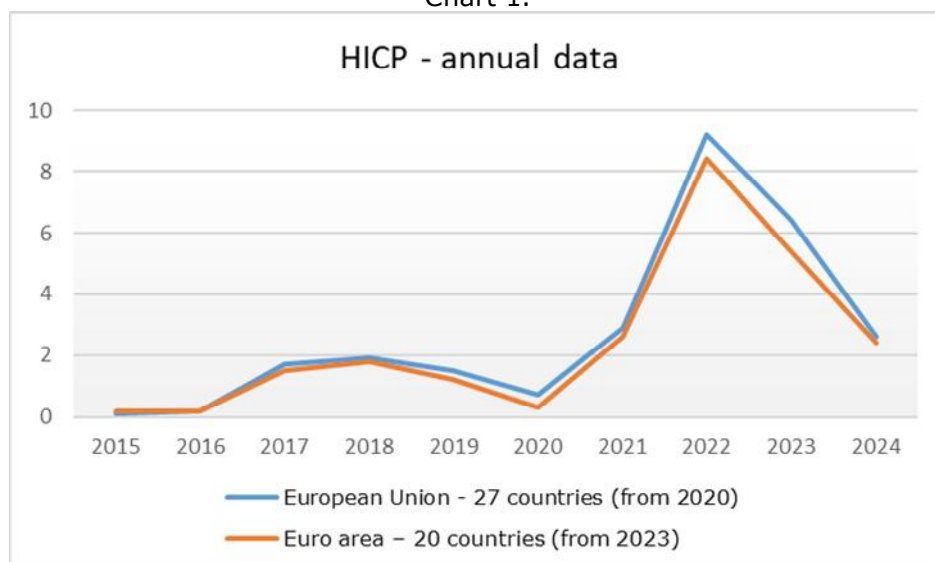
In 2022, the inflation rate in the EU-27 was a high 9.2%. The inflation process in the European Union was driven by a series of shocks that affected not only its Member States, but also other economies. High energy prices spilled over into production and transport costs, increasing the

⁸ Data from the Eurostat database, HICP - annual data (average index and rate of change); Last updated: 19/5/2025
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prices of goods and services. The war also particularly affected the prices of agricultural products such as wheat, of which Russia and Ukraine are the main exporters.

In the following year, 2023, inflation was slightly lower at 6.4%, before stabilizing at 2.6% in 2024. Inflation rates were slightly lower in the Euro area (see Chart 1).

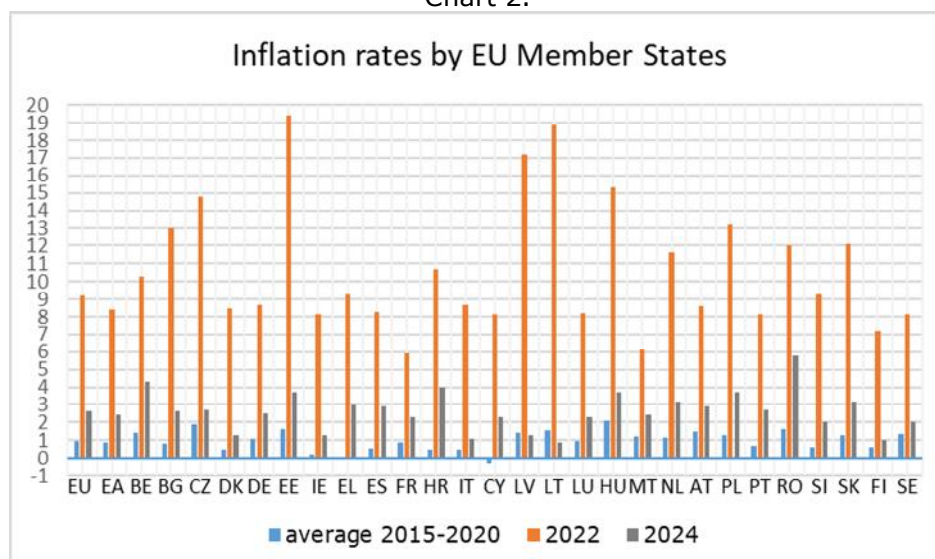
Chart 1.



Source: Presentation of the author based on data from the Eurostat database, HICP - annual data (average index and rate of change), <https://ec.europa.eu/>

If we look at inflation rates in 2022 by EU-27 Member States (Chart 2), we can conclude that they were highest in Estonia (19.4%) and Lithuania (18.9%), due to their high dependence on Russian energy imports. They were lowest in France (5.9%) and Malta (6.1%).

Chart 2.



Source: Presentation of the author based on data from the Eurostat database, HICP - annual data (average index and rate of change), <https://ec.europa.eu/>

In response to rising inflation, EU-27 governments implemented various policies to support businesses and consumers in 2022, in some cases marking a return to price controls not implemented since the 1970s. Greece capped retail margins on food and other essentials, Spain reduced the VAT rate on food, while France negotiated agreements with supermarkets to ensure the availability of food products at the lowest possible price.⁹

II The impact of inflation on VAT revenues

Inflation affects government revenues and expenditures differently. Tax revenues adjust more quickly to price changes than expenditures. High inflation rates in the short run increase government revenues more quickly than expenditures and can create the impression of a favorable fiscal space. This is because tax revenues are directly linked to economic transactions that reflect current prices, while many government expenditures, such as public sector wages and social transfers, do not adjust automatically. The greater sensitivity of tax revenues to inflation is partly structural, as newer tax systems have become much more dependent on *ad valorem* revenues. The fiscal stimulus from inflation means that an increase in the price level can lead to higher tax revenues without increasing tax rates. This temporarily improves the government's fiscal position, but these effects are usually temporary, as government expenditures also gradually adjust to the new price level. Government expenditures quickly catch up with high prices, so the initial positive effect of inflation on fiscal positions quickly disappears. Therefore, inflation can raise *ad valorem* revenues in the short run, while in the long run it can have negative effects, as it leads to the erosion of real income and household consumption. The main risk in this situation is that the impression of abundant tax revenues could lead policymakers to initiate new public spending programs or reduce tax rates, which could threaten public finances in the future.

The impact of inflation on VAT revenues is complex. Inflation automatically increases the tax base for VAT given it is *ad valorem* revenue. On the other hand, inflation reduces the purchasing power of household disposable income, leading to a change in consumption patterns towards necessities. Under a single VAT rate, inflation will bring an increase in VAT revenues, but on condition that there is no decrease in consumption. Inflation increases the nominal value of goods and services, i.e. the base on which *ad valorem* taxes are levied, but it also leads to a decrease in the purchasing power of the population, especially low-income groups, which can lead to a decrease in real consumption. Under conditions of differentiated tax rates, inflation can lead to a change in the effective tax rate. Thus, the increase in energy prices in 2022 in the EU-27 countries led to an increase in effective VAT rates, because energy products are generally taxed at higher than average rates. Unlike energy, rising prices for agricultural and food products contributed to a decline in effective VAT rates, as they are mostly taxed at reduced rates. Other factors that influenced the effective VAT rate included changes in the composition of the consumer basket and the strength of government support. Rising inflation also affected the business operations of companies, with an increase in the number of those exceeding the VAT threshold.¹⁰

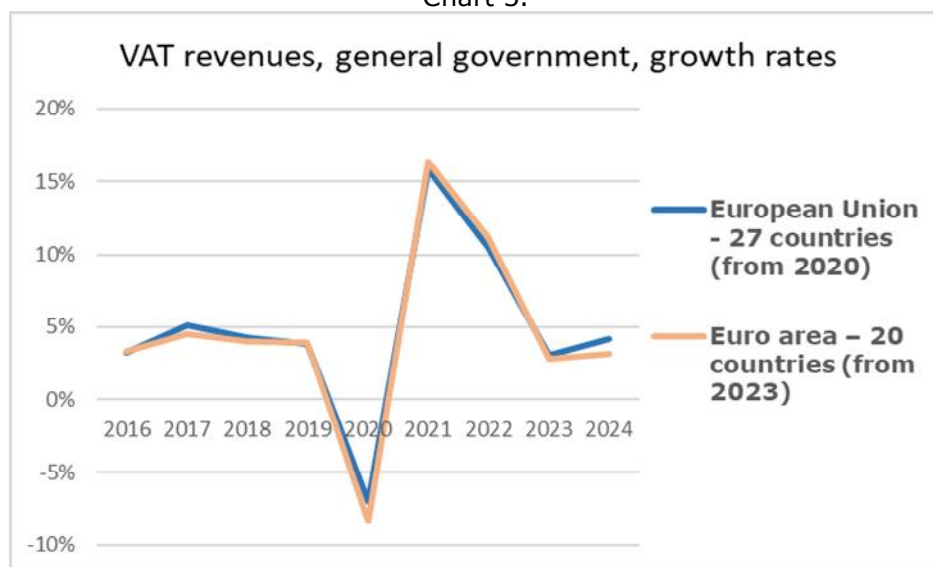
III Factors of VAT revenue collection

The coronavirus pandemic led to a significant drop in VAT revenues in 2020 in EU general government budgets of as much as 7%, primarily due to reduced final household consumption.

⁹ European Commission: Directorate-General for Taxation and Customs Union, Center for Social and Economic Research (CASE), Oxford Economics, Syntesia, Bonch-Osmolovskiy, M. et al., VAT gap in the EU – 2024 report, Poniatowski, G. (editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2778/2476549>

¹⁰ Ibid, p. 10.

Chart 3.



Source: Presentation of the author based on data from the Eurostat database, Government revenue, expenditure and main aggregates, Value added type taxes (VAT) revenue, General government, last updated: 22/04/2025

However, with the return of GDP growth and household final consumption after the lifting of restrictions, these revenues grew by a high 15.9% in 2021. **In 2022, EU-27 general government revenues from VAT increased by 10.5%**, while in 2023 and 2024, moderate growth rates of 3% and 4.1% were achieved, respectively.¹¹

Below, we will analyze which factors led to the growth of VAT revenues in 2022. The collection of VAT revenues depends on three basic factors:

- (a) Movement of the tax base,
- (b) Collection efficiency, and
- (c) Tax policy.

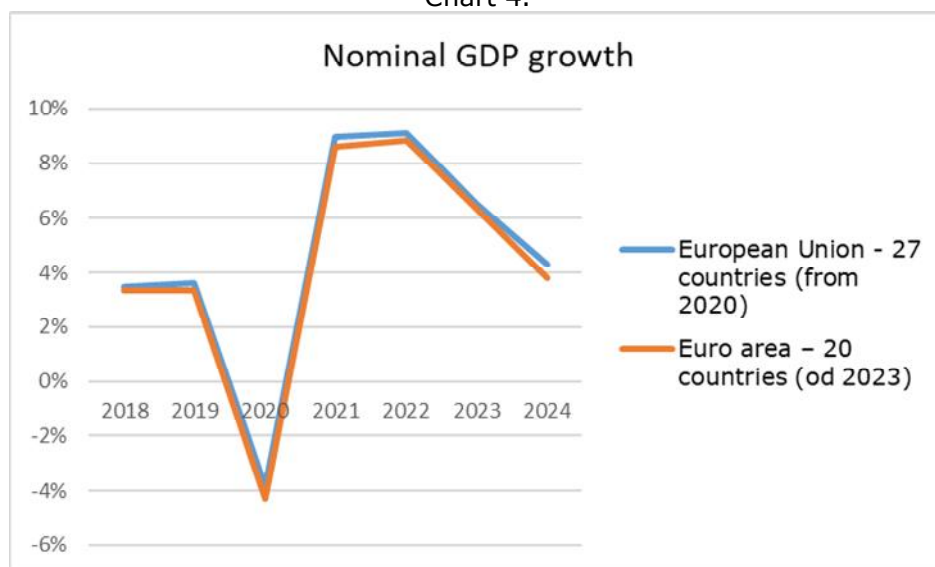
(a) Movement of the tax base

According to Eurostat data,¹² **nominal GDP growth in the EU-27 in 2022 was 9.1%**, slightly higher than the growth rate in the previous year (2021: 8.9%). In 2022, the global economy was still recovering from the impact of the coronavirus pandemic. Given this, the growth rates for 2021 and 2022 should be interpreted with caution and viewed in the context of the decline in GDP achieved in 2020. In addition, the comparison of the growth rate in 2022 with that in 2021 should be interpreted in the context of the fact that 2021 was the first year of the recovery period.

¹¹ Calculation of the author based on data from the Eurostat database: Value added type taxes (VAT), revenue, million euro; Last update: 22/04/2025

¹² Calculation of the author based on data from the Eurostat database, Gross domestic product (GDP) and main components, Gross domestic product at market prices, current prices, million euro; Last updated: 23/05/2025

Chart 4.



Source: Presentation of the author based on data from the Eurostat database, Gross domestic product (GDP) and main components, Gross domestic product at market prices, <https://ec.europa.eu/>

There were significant differences in economic growth across Member States in 2022, influenced by the varying severity of the pandemic effects and the different economic structures of Member States and their exposure to Russian oil and gas imports. Strong nominal GDP growth in 2022 is explained by rising inflation, and it contributed to the strong impact of the VAT base in the same year. In the following two years, GDP grew at much more moderate rates. Thus, in 2023 and 2024, nominal GDP growth rates of 6.6% and 4.3% were achieved at the EU-27 level, respectively.

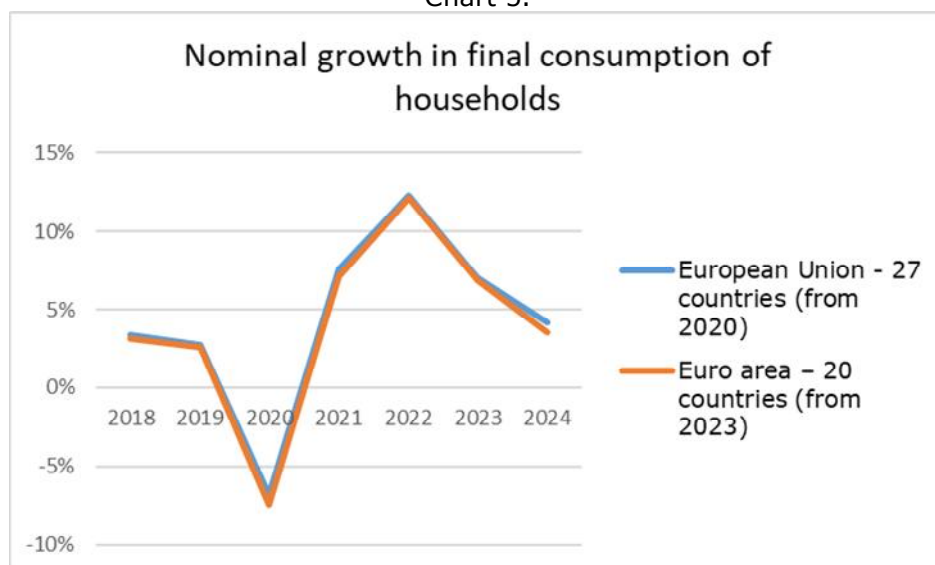
Final consumption expenditure of households is the main indicator of the dynamics of the VAT base, since the largest share of VAT revenue is generated from this category of GDP. After a decline in 2020, final consumption of households grew by 7.6% in 2021. **In 2022, under the influence of inflation, the nominal growth of final consumption of households escalated to 12.3%.¹³** In the following two years, growth rates returned to moderate levels (see Chart 5).

¹³ Calculation of the author based on data from the Eurostat database, Gross domestic product (GDP) and main components, Final consumption expenditure of households, current prices, million euro; Last updated: 23/05/2025

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Chart 5.



Source: Presentation of the author based on data from the Eurostat database, Gross domestic product (GDP) and main components, Final consumption expenditure of households, <https://ec.europa.eu/>

(b) VAT collection efficiency

The EU-27 Member States vary considerably in how efficiently they collect VAT revenues. There are a number of measures of VAT efficiency. One of them is the 'VAT revenue ratio' (VRR), which represents the share of actual VAT revenues in the revenues that would be collected if the standard rate is applied to total final consumption, without exemptions. The VRR indicator can only be a starting point for assessing the efficiency of the VAT system, since it alone cannot assess the extent of tax evasion or the impact of tax policy on VAT revenues. In addition, final consumption from national accounts used in calculating the VRR does not correspond to the actual tax base. In order to draw more specific conclusions about the efficiency of the VAT system, it is necessary to adjust final consumption in order to more closely estimate the VAT base, as well as to separate the effects of tax policy and evasion on the VAT revenues. Thus, the VRR can be decomposed into **compliance gap** and **policy gap**. The policy gap is calculated under the assumption of full compliance with regulations while the compliance gap is calculated taking into account the policy as it is in practice.

The fact that goes in favor of this method of measuring gaps is that tax administrations want to have information about the efficiency of implementation of applied regulations, not a hypothetical one. Compliance and policy gaps are not independent of each other. The degree of compliance with legislation depends, inter alia, on its arrangement (exemptions, thresholds, reduced rates). A change in policy can affect both the policy and the compliance gap, while changes in the efficiency of implementation of regulations affects only the compliance gap.

Compliance gap in the EU-27

The compliance gap represents the difference between the revenue that should be collected in an ideal VAT revenue collection system and the amount that is actually collected. In the analysis of the tax gap in the European Union Member States published by the European Commission, the compliance gap is called the VAT gap.

Therefore, the VAT gap measures the difference between potential and collected revenues, which can be attributed to non-compliance with tax regulations, and not to the tax legislation. To calculate the VAT gap, data on collected VAT revenues and those that would be collected in case of full compliance with the legislation (VAT total tax liability according to the law or VTTL) are required. VTTL represents an estimate of theoretical VAT revenues based on the applied VAT regulations (rates, exemptions, etc.).

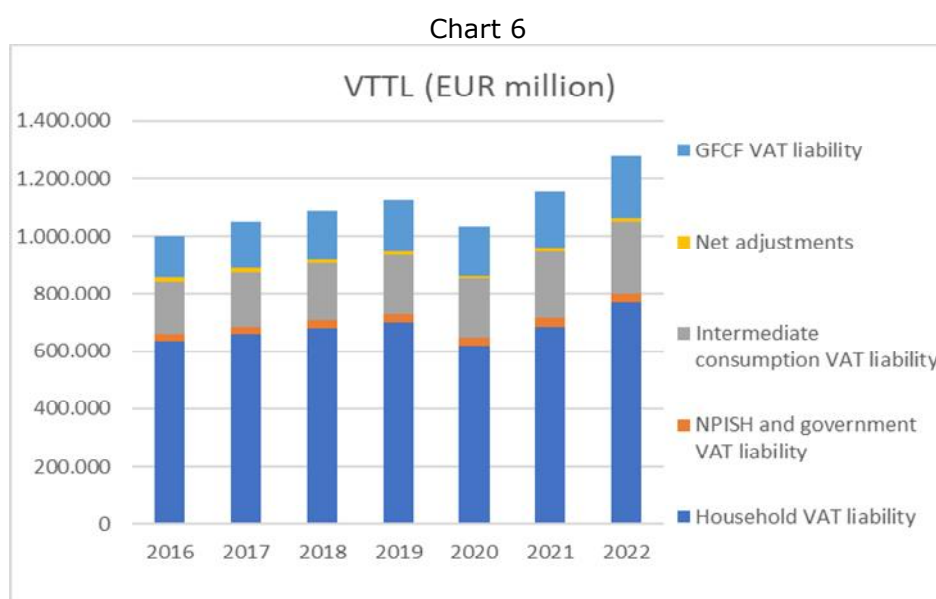
Finally, the VAT gap is calculated as the difference between VTTL and collected VAT revenues (Equation 1), and can also be expressed as a % of VTTL, or as a share of that difference in VTTL (Equation 2).

$$\text{Equation 1.} \quad \text{VAT gap} = \text{VTTL} - \text{VAT revenues}$$

$$\text{Equation 2.} \quad \text{VAT gap} = (\text{VTTL} - \text{VAT revenues}) / \text{VTTL}$$

Estimation of VTTL is a very complex procedure. Assessment according to the "top-down" approach is done based on macroeconomic accounts. VAT gap calculated in this way includes VAT included in all components of aggregate demand and in all institutional sectors. According to the macroeconomic approach, the total theoretical VAT equals to the sum of theoretical VAT contained in household consumption, gross fixed capital formation and other consumption (government and intermediate). Then a number of adjustments are being made in order to take into account specifics of the tax system.

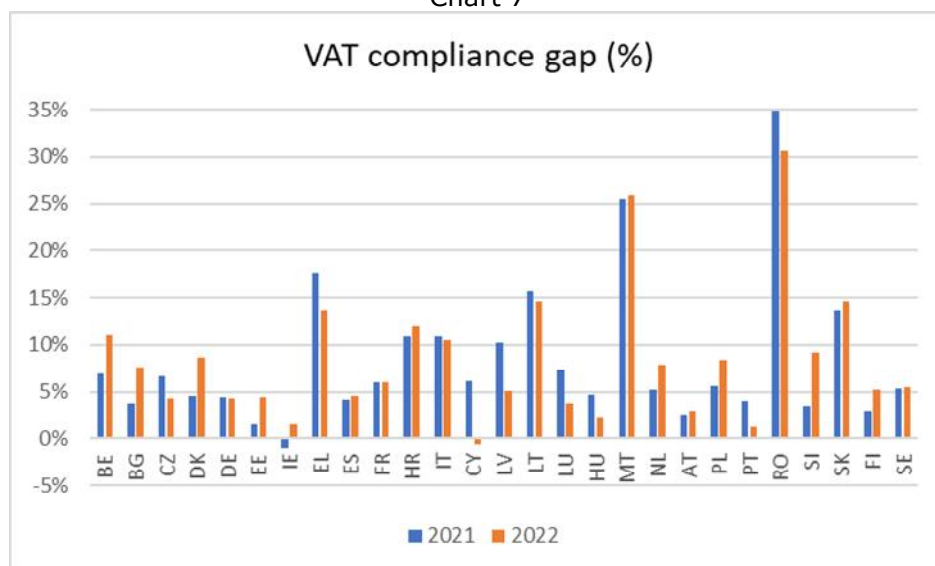
Chart 6 shows the amount and structure of VTTL in the period 2016-2022 for the EU-27. At the EU-27 level, VTTL amounted to EUR 1,276.6 billion in 2022, which is 10.6% higher than in the previous year. In 2022, 60.1% of the VTTL was made up of household VAT liability, 2.7% of VAT liability of NPISH and government, 19.5% of intermediate consumption VAT liability, and the rest were GFCF VAT liability and net adjustments.



Source: Presentation of the author based on data from the EC (VAT gap in the EU- 2024 report, tables 108-113)

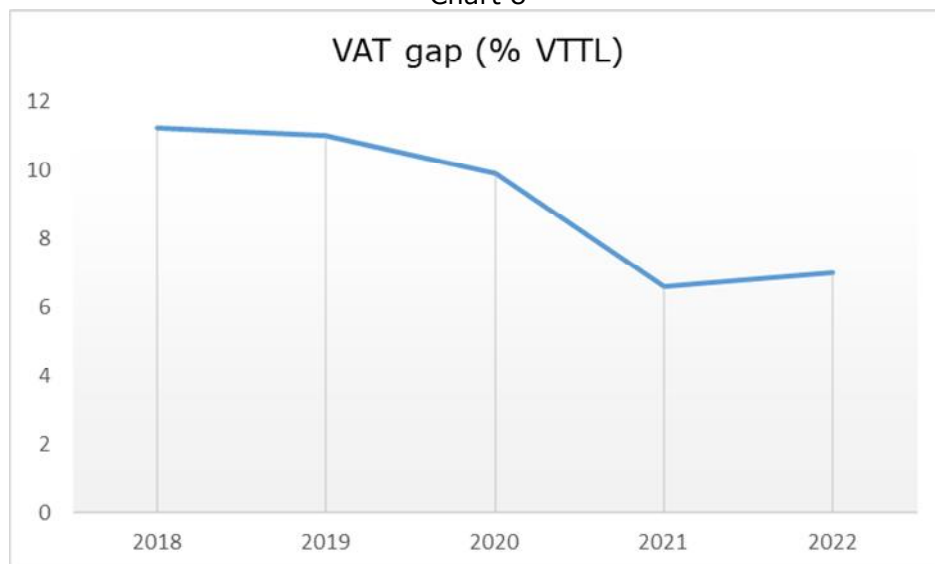
According to the latest published analysis of the VAT gap by the European Commission, **in 2022 the VAT gap was 6.99% of VTTL in the EU-27. Compared to 2021, the gap increased by 0.4 percentage points.** Observed by individual Member States, the gap increased in 15 countries, remained unchanged in one country (France), while it decreased in the others (Chart 7). It increased the most in Slovenia and Denmark (over 4 p.p.), which have a relatively low gap.

Chart 7



Source: European Commission, VAT gap in the EU- 2024 report, tab 116; presentation of the author

Chart 8



Source: European Commission, VAT gap in the EU- 2024 report, p. 27; presentation of the author

The EC report states that there is a certain degree of uncertainty around the estimates for 2020 and 2021, and consequently the calculation of the year-over-year change in 2022. The reason is inconsistency in the methodology and the lower quality of national statistics due to the turbulent conditions in 2020 and 2021. For this reason, comparisons of estimates between 2019 and 2022 are more informative. Compared to 2019, the last year before the pandemic for which data of

similar quality is available as in 2022, the VAT gap in 2022 is lower by 4 p.p. (the VAT gap was 11% of VTTL in 2019, see Chart 8).

(c) Government taxation policies

In addition to collection efficiency, government taxation policy is extremely important for the collection of VAT revenues. This refers to policies of exemptions, reduced rates and other measures within the VAT system.

Due to high and rising inflation, many EU Member States decided to introduce temporary VAT-related measures to support households and businesses facing higher living and operating costs. The reductions and exemptions primarily concerned energy products and fuel. In 2022, 11 countries introduced or extended rate cuts or exemptions in this area. Some Member States also provided tax relief and deferred payments, including VAT reductions on essential goods and services, which affected VAT revenues.

At the EU level, Council Directive 2022/542, adopted on 5 April 2022, known as the Reduced VAT Rates Directive¹⁴, introduced significant changes to the structure of VAT rates in the EU. These rules are designed to provide Member States with greater flexibility in the rates they can apply.

The policy gap refers to the loss of revenue compared to the theoretical, due to the applied taxation policy or legal solutions. This gap actually shows the additional VAT revenue that could theoretically be generated if a uniform VAT rate is applied to the final domestic use of all goods and services by households. The policy gap can be further broken down into the rate gap and the exemption gap. The rate gap reflects the impact of VAT rate differentiation, while the exemption gap is the result of exemptions.

Equation 3.	$\text{VAT Policy gap} = \text{VAT rate gap} + \text{VAT exemption gap}$
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The overall policy gap for the EU-27 in 2022 was 49.6% of the notional ideal revenue. Of the total value of 49.6%, in 2022 approximately 12.0% can be attributed to the application of reduced rates. The exemption gap, interpreted as the share of notional ideal revenue that a country forgoes due to various exemptions or maintaining some components of household final consumption outside the VAT base, in 2022 was on average 37.5% for the EU-27.¹⁵

Actionable and non-actionable components of the policy gap

Some services are exempt from VAT because it would be difficult to impose VAT on them (e.g. provision of public goods, financial services, etc.). By subtracting the amount of VAT revenue lost due to these services from the total policy gap, we obtain the so-called actionable VAT policy gap, which is actually the amount of additional VAT revenue that could realistically be raised by abolishing reduced rates and certain exemptions (Equations 4 and 5). The actionable policy gap measures the VAT revenue lost due to reduced VAT rates and exemptions that are theoretically possible to discontinue. The essential objective of the actionable gap measure was to exclude from the total policy gap values that are unlikely to be taxed due to practical reasons and limitations in imposing VAT (non-actionable component), i.e. because it is impractical or beyond the control of national authorities.

¹⁴ <https://eur-lex.europa.eu/eli/dir/2022/542/oj/eng>

¹⁵ Ibid, p. 56

Equation 4. $\text{VAT Policy gap} = \text{VAT rate gap} + \text{actionable VAT exemption gap} + \text{nonactionable VAT exemption gap}$

Equation 5. $\text{Actionable VAT policy gap} = \text{Actionable VAT exemption gap} + \text{VAT rate gap}$

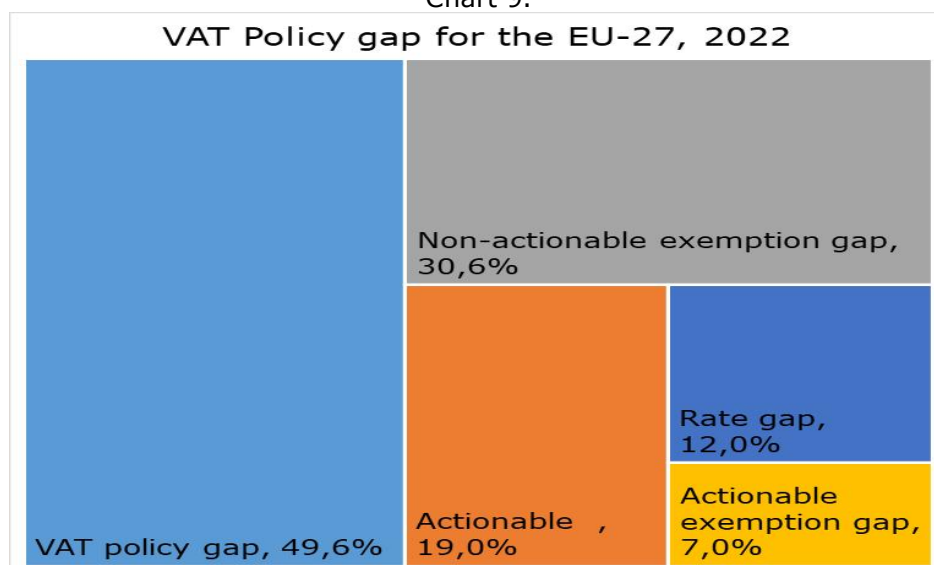
In 2022, the VAT policy gap for the EU-27 was 0.6 percentage points higher than in 2019. Compared to 2021, it decreased by 0.2 p.p. The actionable VAT policy gap increased in 2022 by a total of 1.4 percentage points compared to 2021. It also remained approximately 1 percentage point above the pre-coronavirus period (2018 and 2019). The non-actionable exemption gap decreased in 2022 by 1.6 percentage points compared to the previous year.

Table 1. Policy gap u EU-27 and its components

		2018	2019	2020	2021	2022
1	<i>Rate gap</i>	11,5%	11,5%	11,2%	11,0%	12,0%
2	<i>Actionable exemption gap</i>	6,6%	6,5%	6,7%	6,6%	7,0%
3=1+2	<i>Actionable VAT policy gap</i>	18,1%	18,1%	17,9%	17,6%	19,0%
4	<i>Non-actionable exemption gap</i>	31,2%	30,9%	33,0%	32,2%	30,6%
5=3+4	<i>VAT policy gap</i>	49,3%	49,0%	50,9%	49,8%	49,6%

Source: European Commission, VAT gap in the EU- 2024 report; presentation of the author

Chart 9.



Source: European Commission, VAT gap in the EU- 2024 report; presentation of the author

The Member States with the highest policy gap in 2022 were the same as in 2021. These were Spain (57.2%), Italy (55.3%) and Greece (54%). The actionable VAT policy gap was highest in Spain (27%), Greece (26.5%) and Poland (25.4%).

Actionable standard VAT rate

The „actionable standard VAT rate“, which represents the single statutory rate that would equalize the current VTTL in a situation if all actionable exemptions and reduced rates were repealed, was 16.6% on average in the EU-27. This means that such systems could have a lower standard VAT rate by approximately 4.9 percentage points to remain VTTL-neutral.

Text box 1. Collection of VAT in Bosnia and Herzegovina in 2022 compared to the previous year

VAT gap estimates for Bosnia and Herzegovina have not been made. The share of net VAT revenues in GDP increased by 0.2 p.p. in 2022 compared to the previous year. In addition, the share of net VAT in total final consumption (households, NPISH, government) increased by 0.1 p.p., which, under the conditions of a single VAT rate, may indicate an increase in collection efficiency.

In 2022, a high VAT growth rate of 15.6% was achieved, while total net revenues from indirect taxes at the ITA grew at a rate of 13.1%.

The main factors of VAT growth in 2022 are:

- Nominal GDP growth in 2022. (BHAS, January 23, 2025): 13.6%;
- Nominal growth of final household consumption in 2022: 15,3%;
- Average annual inflation in 2022 (BHAS; TB 09, Sarajevo, 2023): 14%

Summary

In 2022, the EU general government VAT revenues increased by 10.5% compared to the previous year. The factors that influenced the growth of VAT were:

- In 2022, the inflation rate in the EU-27 was 9.2%;
- In 2022, nominal GDP growth in the EU-27 was 9.1% compared to the previous year;
- In 2022, nominal growth in final household consumption was 12.3% compared to the previous year;
- In 2022, the VTTL for the EU-27 increased by 10.6% compared to the previous year;
- The VAT compliance gap increased by 0.4 percentage points compared to the previous year;
- In 2022, the VAT policy gap decreased by 0.2 p.p. compared to the previous year. At the same time, the actionable VAT policy gap increased by a total of 1.4 percentage points, while the non-actionable exemption gap decreased by 1.6 percentage points in 2022 compared to the previous year. If we look at the structure of the actionable VAT policy gap, the rate gap increased by 1 p.p., and the exemption gap (actionable) by 0.4 p.p.

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