The EU food and drink industry: a competitiveness analysis

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This study reports on the evolution over a 15-year period and the current state of the European Union's food and drink industry. Furthermore, it assesses EU food industry competitiveness benchmarked against the US, UK, China, and Canada. The assessment is based on trade indicators (relative comparative advantage and export share of the world market) and other economic indicators (value added, labour productivity, and share value added in total Manufacturing).

Key words: Competitiveness, EU, food, drink, trade, US, China, UK, innovation, value added, productivity.

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P.O. Box 88, 6700 AB Wageningen, The Netherlands, T +31 0317 48 48 88, E info.wser@wur.nl, http://www.wur.eu/social-and-economic-research. Wageningen Social & Economic Research is part of Wageningen University & Research.

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Summary

S.1 What is the economic situation and competitiveness of the EU food and drink industry?

This report examines past and current economic performance and global competitiveness of the EU27 food and drink industry, benchmarking it against key international players. It provides insights about the EU food and drink industry's economic situation and development to help FoodDrinkEurope engage with policymakers, food chain stakeholders and NGOs.

S.2 Key findings

Research question 1: ***What is the current structure and performance of the EU food and drink industry?***

The food and drink industry is the largest manufacturing industry in EU27.

- In 2022, the EU food and drink industry has over 300,000 enterprises accounting for 14.5% of the total EU27 manufacturing industry. The industry employs 4.7 million persons, accounting for 15.7% of the manufacturing industry. It contributes 1.6% to the EU GDP and generates the largest value added (€266 billion) in the manufacturing industry. About 99% of enterprises in the EU food and drink industry are SMEs; they generate 40.3% of the total value added in 2022.
- The industry is extremely diverse and encompasses 10 product categories, and the top three are bakery and farinaceous (49%), other products (12%), drinks (11%). The top five sub-sectors (bakery, meat, dairy, drinks, and other food products) account for 89% of the enterprises.
- The EU food and drink industry is a major contributor to the extra-EU trade surplus, with France, the Netherlands and Italy being leading exporters. In 2023, total EU27 extra-EU exports of food and drink products were valued at €183 billion. Of the 27 EU countries, 23 are net exporters of food and drink products. The major products exported are other food products, drinks, meat products and dairy products, with the UK (€42.9 billion), the US (€24.9 billion), China (€12 billion), Switzerland (€8.4 billion) and Japan (€ 6 billion) as top destinations.

The agri-food chain has strong industry links and interconnections. The food and drink industry is a strong contributor to the agri-food chain, accounting for 26.7% of the value added.

- The food and drink industry is deeply connected to the broader agri-food chain. The four major components of the food value chain are the agricultural sector, the food and drink industry, wholesale and retail, and food and drink services. In 2022, in monetary terms, the food and drink industry spent 90% of its agricultural input expenses within Europe. Upstream, it is estimated that the EU27 food and drink industry indirectly supported 3.5 million agricultural annual work units, 39% of the total agriculture employment in 2022. Downstream, it is the major supplier of grocery products to the retails.

Research question 2: ***What are the trends in the key economic variables and the position of the food and drink industry in the past 15 years?***

In 2023, the industry had strong economic performance with a turnover of €1.44 trillion and 8% profit margins.

- Over the past 15 years, the EU food and drink industry has maintained its strong position as a key contributor to EU27 economic development, adapting to numerous economic, social, and environmental

challenges. Between 2008 and 2022, the food and drink industry's value added and turnover increased by 59% and 61%, respectively. In comparison, the industry's turnover was 50.7% higher than that of the chemicals industry, and 8.1% higher than the automotive industry in 2020. However, recent growth (since 2021) is to a large extent due to increasing prices.

- Since 2014, the overall profit margins of the food and drink industry have fluctuated around 8%. In 2020 and 2021, companies benefited from increased demand for packaged products during lock-downs and increased retail demand. However, following the increased cost of raw materials, energy and labour, 2022 saw a 1 percentage point decline in profits, and pressure on profits remained high in the following years.
- The average personnel cost in the food and drink industry increased by 36% between 2008 and 2022. Furthermore, the value of social security payments, an important element of the total employment costs, increased from €23 billion in 2008 to €34.3 billion in 2022. In this period, the labour productivity increased by 41% to €56,331 per person employed. Despite this increased productivity, it was 30% lower than that of the manufacturing industry (€80,638 per person employed in 2022) as a whole. Moreover, labour productivity growth was 23% lower than the manufacturing industry (64% growth rate). The low productivity is due to the lower adoption and utilisation of new technologies, and a lack of skilled and affordable labour, especially for SMEs. It is important to note that while the overall labour productivity is low, countries such as Belgium and the Netherlands recorded a higher productivity than the EU industry average with €101,000 and €118,000 respectively.

In the last 15 years, the food and drink industry has made significant investments that fostered growth and positioned itself as manufacturing leader and an important contributor to the EU27 economy.

- Gross investment in tangible goods increased by about 41%, reaching 49 billion euro in 2022. This is 14.8% of the total gross investment in tangible goods by the Manufacturing industry. The increase was driven by growing global and intra-EU demand for European food and drink products, and the creation of new enterprises.
- EU27 Research and development (R&D) expenditure increased by 63% from €1.9 billion to €3.1 billion between 2008 and 2022 with France, the Netherlands and Germany contributing nearly half of the EU27 R&D expenditures on food and drink. Furthermore, between 2015 and 2022, inward foreign direct investment (FDI) of the food and drink industry has also grown by 24% from €135 billion to €167 billion. Despite past investments, the future is uncertain. Expert interviews revealed that between 2023 and 2024, industry stakeholders are either reducing or putting a halt to investments due to uncertainty and changing regional policies.

The industry had a robust trade performance with an extra-EU trade surplus growth of 384% from 2008 to 2023. It is also the major food and drink products supplier within the EU27 market.

- The total export value of food and drink products in 2023 was €183 billion. From a trade balance of €16.6 billion in 2008, the industry's trade surplus increased by 384% to €81 billion in 2023 due to the significant growth of extra-EU export of 133% from 2008 to 2023. This is exponentially higher than the extra-EU import growth of 65% in the same period. Although in 2023 the market grew rapidly in monetary terms, it is worth noting that this growth was primarily due to increased prices, and that actual volumes of food consumption at retail level decreased. The leading three exporting countries in 2023 were France, the Netherlands, and Italy.

Research question 3: *What were the effects of input price increases, and other major economic disturbances in the period since 2020?*

Commodity and energy prices registered record high with up to 126% and 217% increase respectively, contributing to high input costs and food inflation. Although some costs reduced in 2023, they remain above pre-pandemic levels.

- In 2020, the first wave of the COVID-19 pandemic severely disrupted supply, with border closures, transportation delays, and labour shortages creating logistic challenges. This contributed to rises in commodity prices and the producer price index. In 2022, commodity prices surged with palm oil reaching

record highs with a 126% increase. While in 2023, the price of some commodities such as soybeans stabilised and even declined, other commodities such as cocoa and coffee were still rising.
- Furthermore, Eurostat data shows a 97% and 217% increase of electricity and gas prices between 2021-S1 and 2022-S2. Similarly, the average EU price of gas oil (including taxes) for automobiles increased by 67% between the beginning of January 2008 and the end of June 2022, and heating oil increased by 106% over the same period. This was particularly damaging to the food and drink industry, which relies on gas and electricity for about 80% of its energy inputs. Rising input costs translated to higher production costs, which reflected in a significant increase in the producer price index (PPI). Although these costs decreased again in 2023, they remained above pre-pandemic levels.

Profit margins have been squeezed due to inflationary pressures along the agri-food chain.

- Between 2021 and 2023, food price inflation increased by 19%. By March 2023, the food inflation rate in the EU27 reached its peak at 20% (Appendix A-2.1). In the period 2008-2022, the total EU27 gross operating surplus of the industry increased from about €67.7 billion in 2008 to just over €108 billion in 2022, with a temporary dip due the economic crisis years 2011-2012. However, following increasing input and labour costs, 2022 saw a decline in profits, and pressure on profits remained high in the following years.
- These pressures, along with the increasing retail concentration and negotiating power (an important contributing factor to the negotiation power is the access to information on manufacturing costs through private-label suppliers), the introduction of private labels, and the increasing market share of discounters, all lead to increasing strong position of the retailers within the value chain.

Research question 4: ***How competitive is the EU food and drink industry compared with some major competing countries and how has competitiveness evolved?***

The EU27 food and drink industry is the world's largest food and drink industry, with 19% of the global food and drink manufacturing export market share in 2023. But the EU27 industry competitiveness is pressured, resulting in a loss of trade market share.

- From 2008 to 2023, the EU27 food and drink industry maintained the largest global market share (21% in 2008; 19% in 2023), followed by the US (10% in 2008; 11% in 2023). Although still the largest net exporter, the EU27 is losing market share, while the US and China are gaining market share with faster growing labour productivity, higher investments and adoption in innovation, and cheaper energy costs, compared to EU27.
- The competitiveness of EU27 is assessed based on the growth rate of five key indicators.
  1. Export growth rate: Pre-COVID-19 (2008-2019), China had the largest export growth rate of 83%, followed by the US and Canada with 54% each. Conversely, China is becoming an increasingly attractive market for food and drink products. This growth is ascribed to the growing middle class, an increasing consumer demand for healthy products, and a growing interest in premium and indulgent alcoholic drinks and food products;
  2. The gross value added growth rate of the EU27 is lower than the US between 2010 and 2021. The US performed best resulting in its high value added, attributed to its higher labour productivity growth rate and investment in R&D;
  3. The labour productivity growth rate of the US is 16 percentage points higher than the EU. China and the US have the highest R&D intensity growth;
  4. The EU27 turnover growth rate of 52% is lower than the US (56%) between 2012 and 2022; and
  5. Between 2008 and 2019, the gross operating surplus growth rate of the EU (41%) was lower than the US (84%).

Research question 5: ***What are the most important strengths, weaknesses, threats and opportunities of the EU food and drink industry?***

One of the major strengths of the food and drink industry is the large scale of EU's market that is strongly rooted in the EU internal market, serving around 449 million consumers in 27 Member States. At the same time, its access to the extra-EU market bolsters trade with positive reputation of its products quality, safety and sustainability. The sector is not only an integral part of the EU economy, but also of society. The weaknesses of the industry are the relatively lower labour productivity and investments in and adoption of innovation and technology, especially compared to the US and China. The sector is currently facing a number of external threats such as high energy prices, high commodity prices, climate change impact on commodity sourcing, increased concentration at the retail level, lack of skilled labour and increasing labour costs.

On the other side the EU is well positioned to meet consumers' demand for sustainable products. There are opportunities to expand to new geographies, and also new market segments such as healthy diets. In addition, the industry can improve its productivity by increasing automation and new technologies adoption. Furthermore, consistent and increased investments in the industry will further contribute to improving its competitiveness. The European Commission is dedicated to rebooting EU competitiveness through the competitiveness compass framework. The food and drink industry, as a leading manufacturing industry, is well positioned to contribute to the competitiveness in the EU.

1 Sustaining the competitiveness of the EU27 food and drink industry

1.1 Food and drink industry: a major pillar of EU27 economy

The European Union's (EU) food and drink industry is an important player in the EU economy. It is not only vital for delivering safe, nutritious, and enjoyable products to millions of consumers, but it is also a critical driver of employment and economic growth. In 2022, the industry consists of more than 300,000 companies, and it accounted for 10.9% of total Manufacturing value added, making it the largest manufacturing industry in the EU. As such, it supports 4.7 million direct jobs in the food and drink industry and 3.5 million indirect jobs in EU agriculture. In addition, as the key actor that transforms raw materials into food and drink products, it is crucial for innovation, food quality and food safety.

However, the industry faces growing challenges in an increasingly competitive global market. Nations such as the United States of America (US), United Kingdom (UK), China, and Canada are strengthening their positions through innovation, trade policies, and investments in advanced technologies. These dynamics highlight the urgent need for the EU27 to adapt and enhance its competitiveness in this area. In addition to this growing competition, major economic and political factors have recently impacted the industry, especially the 2020 COVID-19 pandemic and the ensuing major supply disturbances. Increased global inflation has added even more pressure to the industry, and its ability to adapt. At the same time, food and drink companies are increasing sustainability efforts and implementing new regulations in their business practices. The industry has to address current issues including evolving consumer demands, trade pressures, sustainability imperatives, regulatory demands and technological advances. To meet these challenges, the industry, stakeholders and policymakers must put in place the strategic actions needed to foster business growth and innovation.

1.2 Assessing past and current performance, competitiveness, and key challenges and opportunities

This report examines the past and current economic performance and global competitiveness of the EU27 food and drink industry, benchmarking it against key international players. It provides insights into emerging challenges and future opportunities, offering a roadmap for informed policymaking to ensure the industry's long-term growth and resilience. The main research question answered in this report is: **what is the current economic situation and competitiveness of the EU food and drink industry?**

To develop this roadmap, the following research questions were addressed:

1. What is the current structure and performance of the EU food and drink industry?
2. What are the trends in the key economic variables and the position of the food and drink industry in the past 15 years?
3. What were the effects of input price increases and other major economic disturbances in the period since 2020?
4. How competitive is the EU food and drink industry compared with some major competing countries and how has competitiveness evolved?
5. What are the most important strengths, weaknesses, threats, and opportunities of the EU food and drink industry?

This report was commissioned by FoodDrinkEurope, the industry association of European food and drink industry.

1.3 Method based on desk study, SWOT and interviews

To address the research questions 1, 2, 3 and 4, desk research, data analysis of EU competitiveness against four other countries was used. The collection of statistical data provided the basis for the analysis of past and current performance and trends. The Eurostat database NACE codes used in the analysis are C10 for manufacture of food products and C11 for manufacture of drinks. In case data were not available for NACE C10 and/or C11, larger aggregates were used. In addition the researchers studied a number of recent industry and EU economy reports including the Draghi report (Draghi, 2024).

Second, an analysis of competitiveness was conducted, with historical data over the past 15 years forming the basis for analysis. Competitiveness is about productivity and its ability to maintain and grow future business. It is about the ability to create value added and market opportunities. Factors that determine competitiveness include conditions such as the availability of resources and labour, demand conditions, structural factors like firm dynamics, innovation and entrepreneurship, the developments in related and supporting industries, and government policies.[1] The economic indicators were derived from industry-based statistics (e.g., Eurostat structural business statistics) and the trade indicators from product-based information (Eurostat Comext and UN Comtrade). The economic indicators used are the growth rates of turnover, gross value added and labour productivity, and the research and development intensity. The trade indicators used are the relative export advantage (RXA) and the relative import advantage (RMA) (Appendix 4).

The competitiveness of the EU food and drink industry was analysed by benchmarking the EU27 against four selected countries. In this analysis, relative developments are compared instead of absolute values. The countries are ranked based on their normalised deviation from the others (z-score). Weak is defined as 2 standard deviations below the average of all countries for the specific indicator and strong is defined as 2 standard deviation above the average. All the observations were between -2 and +2 standard deviations for the respective indicators (see Appendix 4). A positive score for the EU-27 means a relative improvement compared to the benchmark countries, irrespective of the the absolute value. Likewise, a negative score reflects a relative decrease, irrespective of the absolute value. Hence, increased labour productivity may still lead to a negative score if other benchmark countries managed a higher increase in labour productivity. This also applies to the other indicators for competitiveness.

The main sources of statistical data used were: Eurostat, UN Comtrade, FAO, OECD and national statistics including the Canada Statistics, US Census Bureau, and the China Statistical Yearbook. In addition, data on the introduction of new products from branded or private labels were obtained from the commercial database of Innova Market Insights. The earliest data are from 2008, 15 years prior to 2023; where 2008 data series were not available, the earliest available data available were analysed. The period considered includes the 2012 assession of Croatia to and the 2022 'Brexit' of the United Kingdom from the European Union. In some instances it was not possible to separate the tobacco industry from the food and drink industry; in these cases inclusion of tobacco industry data is added as a footnote.

To address research question 5, an analysis of the strengths, weaknesses, opportunities and threats (SWOT) was combined with expert interviews. Based on an inventory of influencing factors supported by a PESTLE analysis, the researchers identified and analysed the key SWOT elements. These were consequently discussed in interviews with industry representatives. In total the team conducted four interviews with six key industry experts with the aim to discuss the outcomes of the preliminary analysis and to validate the SWOT.

1.4 Focus is on the EU27 and main competitors

The scope of the report is the EU27 food and drink industry and, for the competitiveness analysis, four countries: the United States of America, China, United Kingdom and Canada. EU27 food and drink companies compete with other countries on the EU market and those abroad. The EU27 market is itself the largest outlet for EU27 food and drink products, with the most important competitors being the US, Brazil, UK and China. In addition we focused on competition in the EU27's most important export market, the US, where Canada is the largest exporter to the US. A EU27 focus was chosen because of the importance of the EU single market and policy framework, as well as data considerations.

[1] Adapted from Porter (1980).

2 The food and drink industry is the largest manufacturing industry in the EU27

The food and drink industry includes all companies involved in transforming raw materials from agriculture and fisheries into food and drink products. The food and drink industry is a diverse industry with a variety of branches ranging from fruit and vegetable processing to dairy products, and from beer to soft drinks. This chapter examines the size and structure of the EU food and drink industry, as well as key developments in the past 15 years in terms of numbers of enterprises, employment, value added, and international trade.

2.1 There are more than 300,000 enterprises, diverse in size and activities

In 2022, the EU food and drink industry consisted of 309,045 companies (Figure 2-1).[2] It accounted for 14.4% of the total of 2.2 million enterprises in the EU manufacturing industry. After fabricated metal products, the food and drink industry has the second largest number of enterprises in the manufacturing industry, making it a major part of the EU economy (Appendix 1).

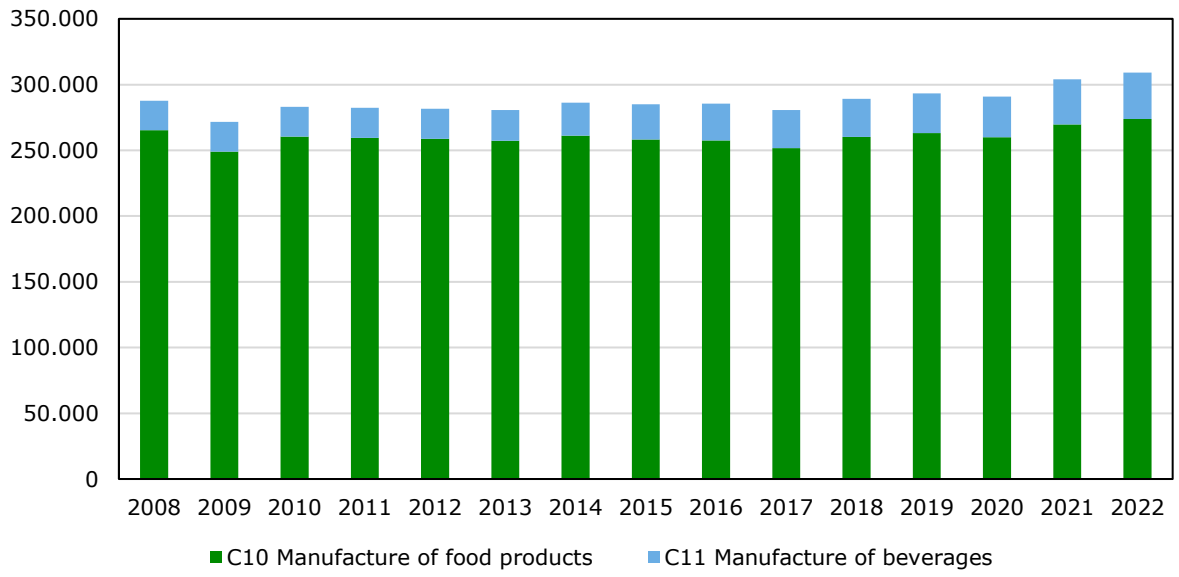

Figure 2-1 *Number of food and drink enterprises in the EU27 between 2008-2022*
Source: Eurostat sbs.

Between 2008 and 2022, the EU food and drink industry recorded a growth of 7% in the number of enterprises, primarily due to the large increase (56%) of drink manufacturing enterprises. This was driven by the growing demand for and expansion of EU food and drink products on the global market and the increased demand during the Covid-19 pandemic. The growth of enterprises outperformed the overall EU manufacturing industry, which saw a limited growth of 1% between 2008 and 2022. This again demonstrates that the food and drink industry is a major contributor to EU economic growth.

About 49% of the companies were manufacturers of bakery and farinaceous products, which includes bread products and pastries as well as pastas, noodles and couscous (Figure 2-2). The second largest branch is the

[2] Note: Eurostat database NACE codes used in the analysis are C10 for manufacture of food products and C11 for manufacture of drinks.

manufacture of 'other food products', which includes among others, cocoa, chocolate and sugar confectionary (7000 enterprises in 2022) and coffee and tea (6000 enterprises). Furthermore, a relatively large number of enterprises are active in drink manufacturing (35,000), including soft drinks, beer, wine and spirits.

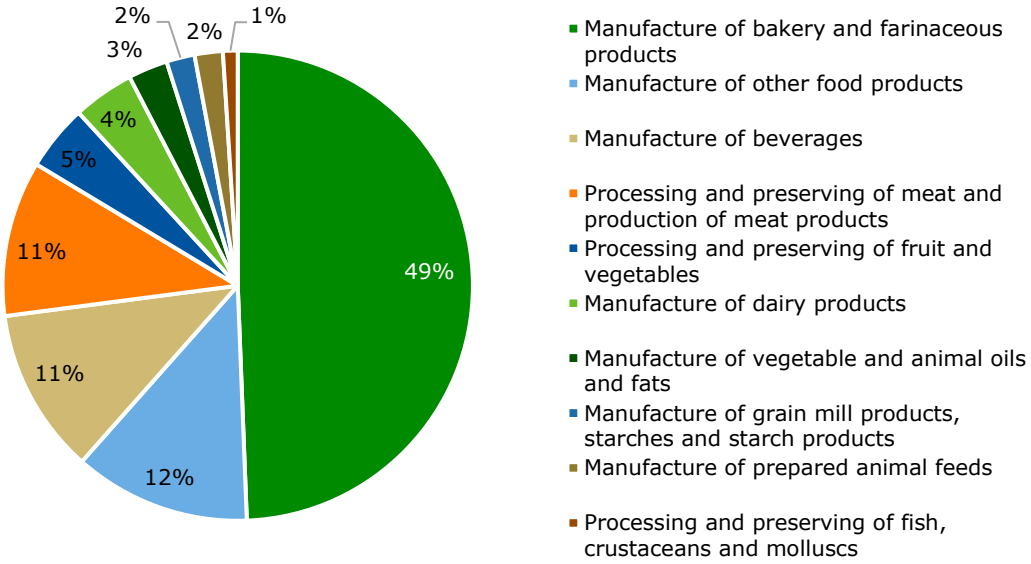

Figure 2-2 *Division of food and drink enterprises in the EU27, in %, in 2022*
Source: Eurostat sbs. Processing and preserving of fish, crustaceans and molluscs was estimated from the available data.

An important characteristic of the food and drink industry is the large share of small and medium size enterprises (SMEs). In 2022, 96% of the EU's food and drink manufacturers were micro or small enterprises, with fewer than 50 employees (Figure 2-3). Overall, SMEs (< 250 employees) make up 99% of food and drink industry, while large companies (> 250 employees) account for just 1%. This is especially relevant in the context of EU policies, as SMEs may bear higher costs when adhering to regulations than larger companies.

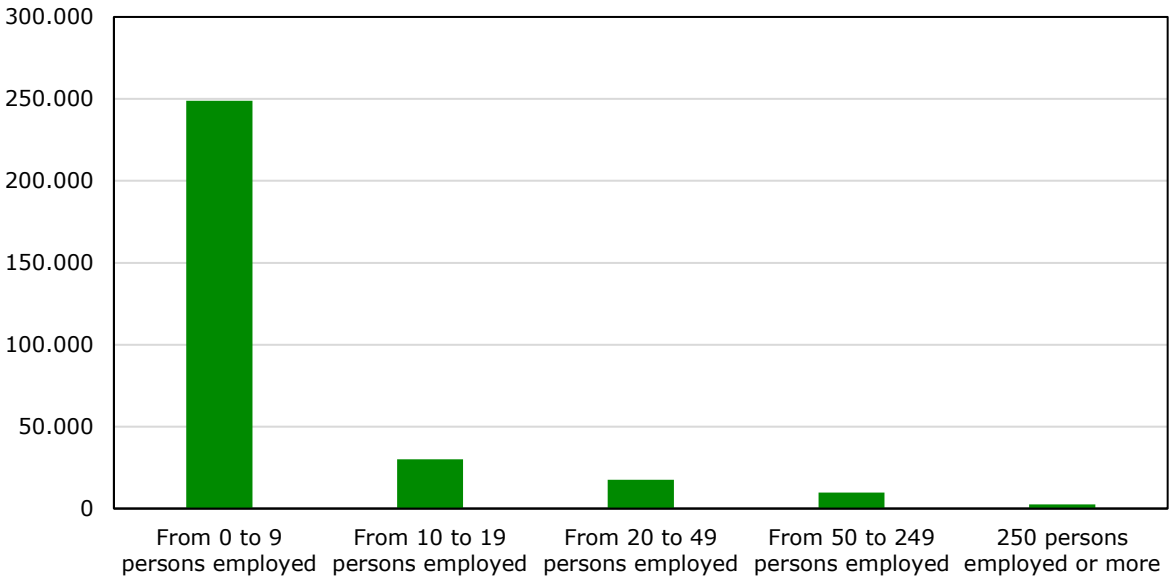

Figure 2-3 *Number of food and drink enterprises in the EU27 per size class based on the number of persons employed, in 2022*
Source: Eurostat sbs.

2.2 The industry employs 4.7 million people directly, and this has been increasing since 2015

In 2022, the total number of employees was estimated at 4.7 million (Figure 2-4). With a large number of enterprises, the food and drink industry is also the leading employer with 15.8% share of the overall employment in the EU manufacturing industry. The largest food and drink branches in terms of employment are the relatively labour intensive industries of the manufacture of bakery and starch-based products (about 32%) and meat and meat products (20.8%). Employment in the food and drink industry was stable from 2008 to 2015, then steadily increased, indicating overall growth and recovery from 2015 onwards.

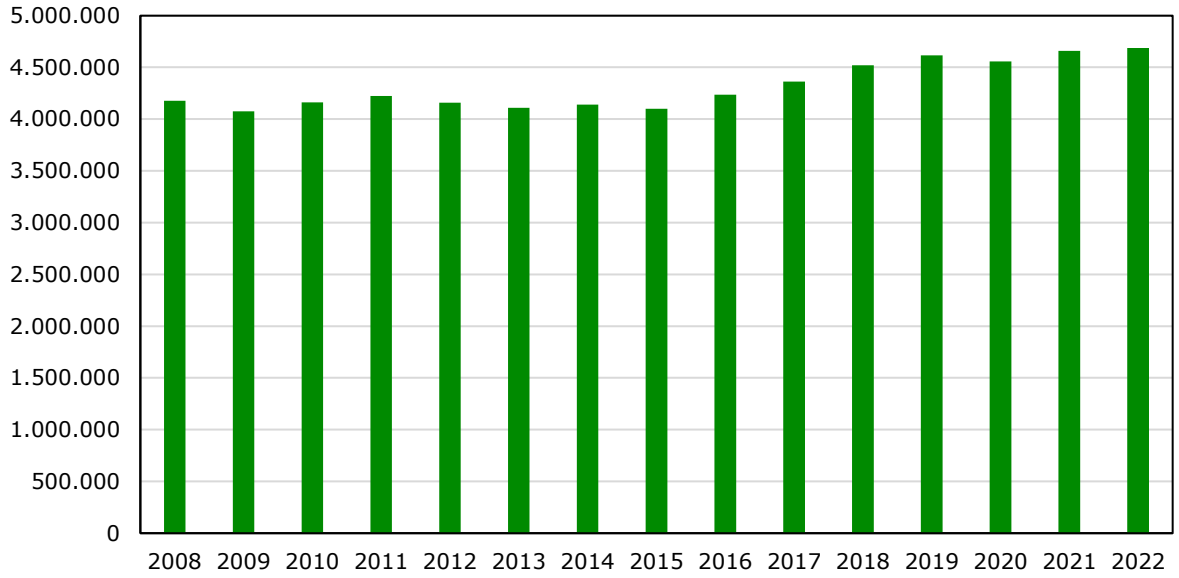

Figure 2-4 *Number of persons employed in the EU27 Food and drink industry, from 2008-2022*
Source: Eurostat sbs.

Box 1 – The food and drink industry is a missing key industry in the Draghi report

The 2024 Draghi report '*Future of European Competitiveness'* provides a competitiveness analysis of major industries in Europe. The report's focus is on a number of manufacturing industries: pharmaceuticals, automotive, ICT, and industries classified as energy-intensive.

Although the industries in Draghi's report are important for the future growth of the EU economy, it must be highlighted that other industries, particularly the food and drink industry are at least as important. Stimulating this sector's growth is important for the provision of safe and innovative food products, as well as the livelihood of upstream agricultural producers.

In addition, while it is not classified as an energy-intensive industry, the food and drink industry employs more people than the four most energy-intensive industries - chemicals, metals, non-metallic mineral, and pulp and paper products - highlighted in the Draghi report. According to the report, "The four top energy-intensive industries account for 13% of manufacturing jobs''. Furthermore, the employment in the food and drink industry (4.7 million in 2022) is larger than other key industries highlighted and prioritised in the Draghi report (2024), such as ICT manufacturing (543,368 persons employed in 2022), pharmaceutical sector (937,000, including 642,296 in pharmaceutical products in 2023), and the automotive industry (2.6 million).

2.3 €266 billion of value added; contributing 1.6% to EU GDP

In 2022, the food and drink industry had the largest value added in the EU manufacturing industry. In 2022, the total value added of the EU27 food and drink industry was €266 billion, 11% of total value added by the EU manufacturing industry. Value added indicates the additional income generated by business activities above the value of inputs sourced from other industries. According to 2022 Eurostat data, about 52% of value added consisted of compensation of employees, with the remaining 48% being capital income.

In 2022, the food and drink industry contributed 1.6% to EU GDP, a slight increase from 2008 (Figure 2-5). In 2011 and 2012, the value added contribution deceased mainly due to high commodity prices during the 2010-2012 food price crises which could not be fully transmitted in the prices of the food and drink industry, resulting in lower margins.

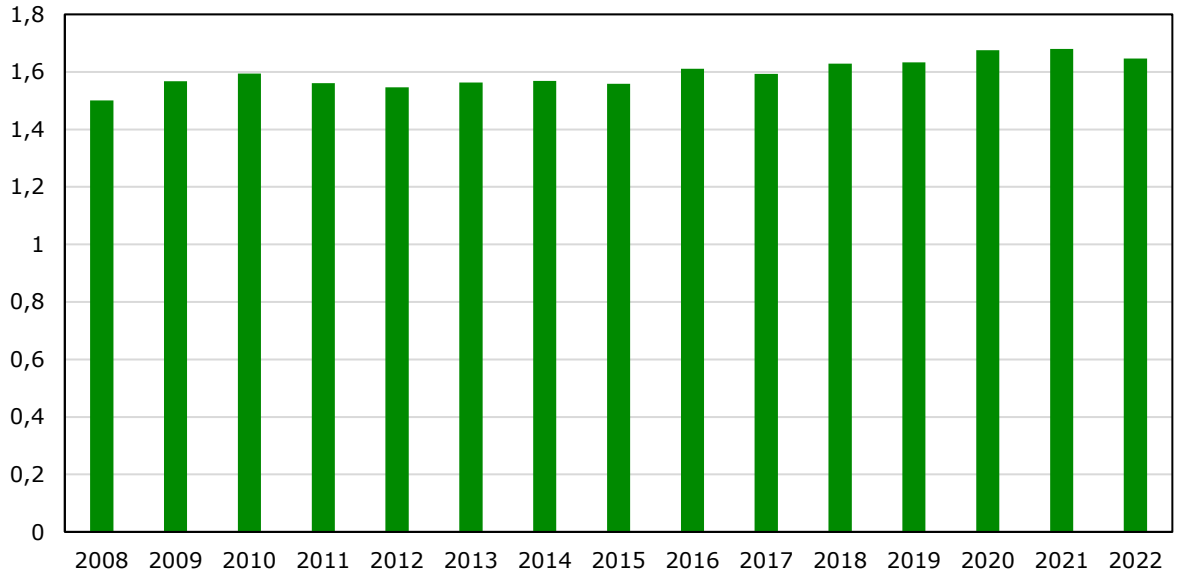

Figure 2-5 *Contribution of the food and drink industry to EU GDP, in %, in 2008-2022*
Source: Eurostat; calculations Wageningen Research.

Total value added increased by 59% between 2008 and 2022, slightly lower than that of total manufacturing (62% growth) (Figure 2-6). In comparison to other manufacturing industries, the food industry alone (€219 billion) is the third largest industry in terms of value added in 2022, only after Manufacture of machinery and equipment n.e.c. (€262 billion) and Manufacture of motor vehicles, trailers and semi-trailers (€224 billion) (Appendix 1).

SMEs generate 40.3% of the total value added of the food and drink industry in 2022. This is a decline from the 48.7% value added generated by SMEs in 2008, illustrating the growing dominance of large enterprises in the industry. Large enterprises employing 250 or more persons accounted for 59.6% of value added. SMEs play an important role on the value added of the EU food and drink industry, but the low level of efficiency and investment in new technologies contribute to the low growth rate. This change could be attributed to the economies of scale for raw materials, manufacturing and labour costs, and investments, for example investments in research and developments for the business.

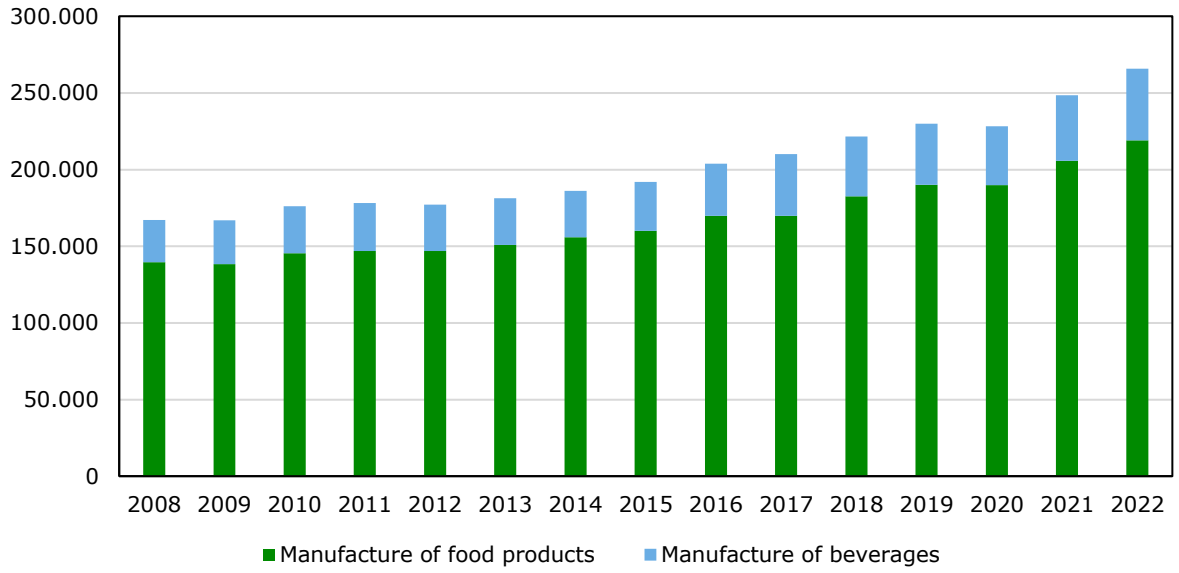

Figure 2-6 *EU27 food and drink industry value added at factor cost, in € million, in 2008-2022*
Source: Eurostat sbs, calculations Wageningen Research.

The largest food and drink industry branches in terms of value added are other food products, which includes among others, cocoa, chocolate and sugar confectionary (€47.5 billion), bakery and farinaceous products (€47.4 billion) and drinks (€46.6 billion).

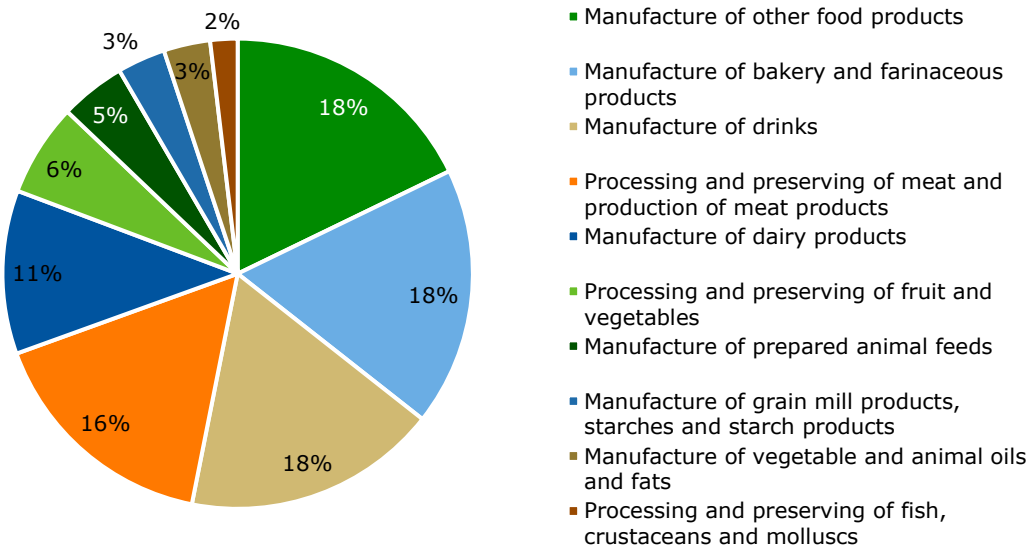

Figure 2-7 *Value added by subsector in the EU27 food and drink industry, in %, in 2022*
Source: Eurostat sbs.

Within the EU27, Germany and France have the largest food and drink industries, followed by Italy and Spain (Figure 2-8). The industry composition in the various countries is similar, with e.g. bakery products and drinks each accounting for 10% - 20% of value added. There are however also a number of noticeable differences, such as regional specialisation and speciality products originating from the local availability of agricultural products, processing traditions, and consumer preferences, as well as investment decisions by the larger companies. Germany has a relatively large bakeries industry, meat processing industry, and beer production. France is particularly strong in dairy products, while Italy has a larger than average fruit and vegetables processing industry, as well as pasta production.

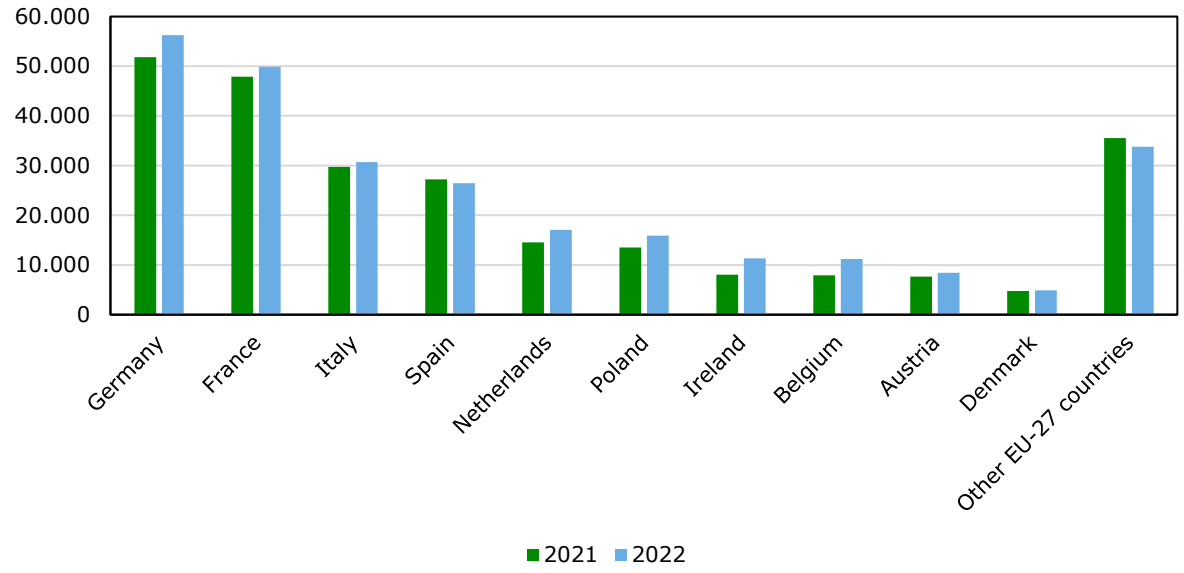

Figure 2-8 *Top 10 EU27 countries with largest food and drink industries by value added, in € million in 2021*
Source: Eurostat sbs.

2.4 The food and drink industry is a major exporter; EU27 trade surplus of €81 billion

In 2023, total EU27 exports of food and drink products were valued at €183 billion. With imports totalling €102 billion, this resulted in a net trade surplus of €81 billion. From 2008-2023, the EU27 trade balance has steadily increased (Figure 2-9) with the extra-EU export value increasing by 133%. In 2023, the sector contributed significantly to the overall EU trade balance, accounting for 7.2% of all extra-EU27 exports, compared to 4.1% of all imports. The extra-EU trade also highlights the industry's importance to maintain strong external trade partnerships. As a major net exporter, an open market is crucial for the food and drink industry and its suppliers.

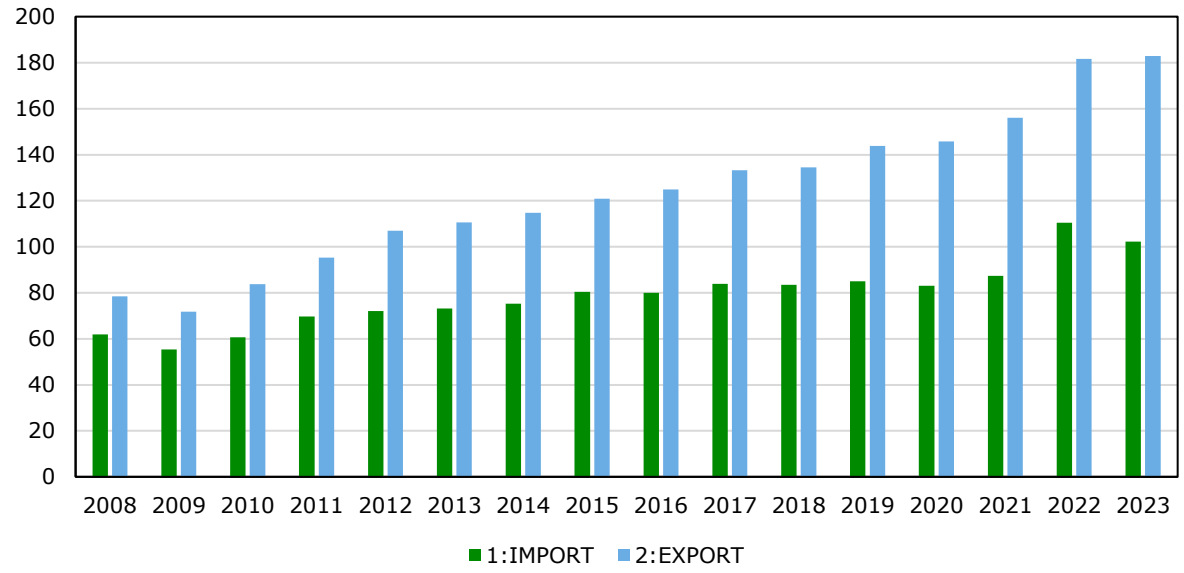

Figure 2-9 *Evolution of extra-EU trade of food and drink products of the EU27, in € billion, in 2008-2023*
Source: Eurostat Comext.

Member States with the largest contribution to extra-EU exports of food and drink products are France, the Netherlands, and Italy (Figure 2-10). Of the 27 EU countries, 23 are net-exporters of food and drink products to the rest of the world (extra-EU trade). This also shows the diversity and strength of the food and drink industry throughout the EU.

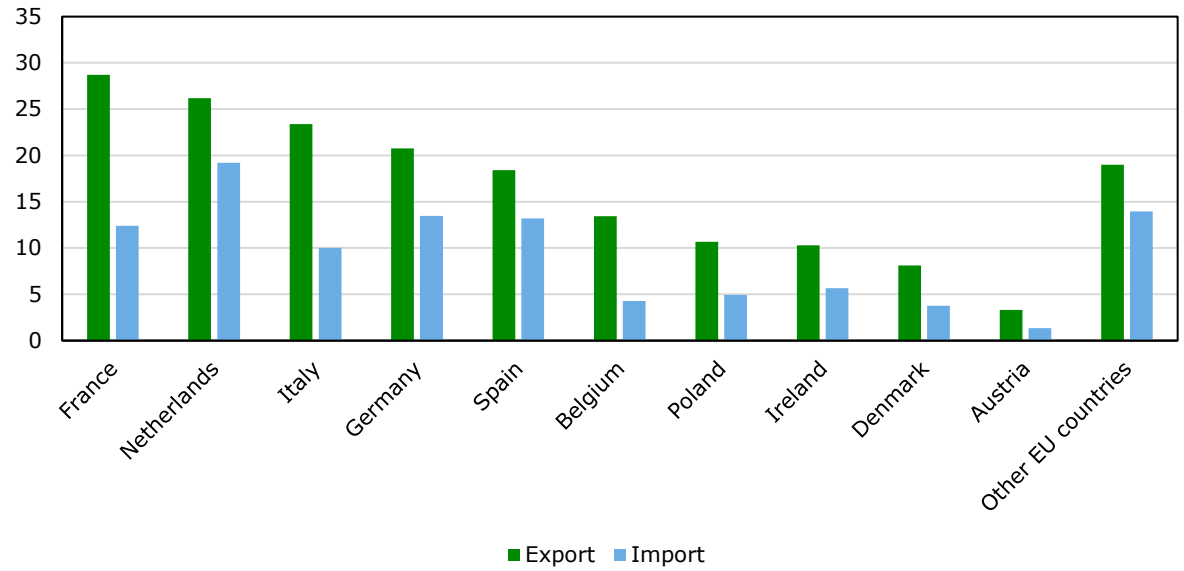

Figure 2-10 *Extra-EU exports and imports of food and drink products for the top-10 exporting EU member states and other EU countries, in € billion, in 2023*
Source: Eurostat Comext, EU trade since 2002 by CPA 2.1.

In 2023, the product categories contributing the most to the EU27's net export value were, other food products (€45.3 billion), drinks (€38.9 billion), preserved meat and meat products (€22.5 billion euro) and dairy products (€19.9 billion). The EU27 has a net trade deficit for processed and preserved fish and shellfish (€-14 billion) and vegetable and animal oils and fats (€-10 billion).

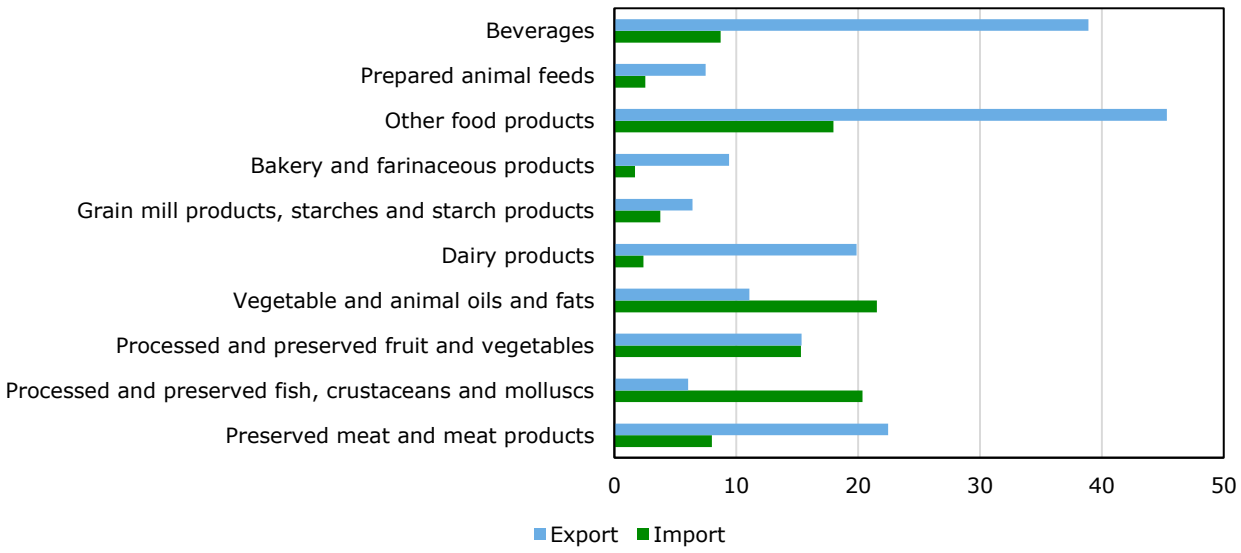

Figure 2-11 *Extra-EU exports, imports and trade balance of food and drink products by product, in € billion, in 2023. Source: Eurostat Comext, EU trade since 2002 by CPA 2.1.*

EU27 countries exported food and drink products to 214 countries in 2023, according to Eurostat statistics, showing the worldwide patterns of food and drink trade. In 2023, the top export destinations of EU27 food and drink products were the UK (23%), the US (14%) and China (7%) followed by Switzerland and Japan (Table 2-1). Together, these five countries accounted for 52% of EU27 exports to the rest of the world. These major export destinations are also major competing countries that export food and drink products in large quantities, with the exception of Japan, which is a large net-importer.

Table 2-1 *Top 5 EU destinations for food and drink products, in € million, in 2020-2023, and percentage of total EU27 food and drink exports*

	2020	2021	2022	2023	Share of EU27 food and drink exports in 2023 in %
UK	33,621	33,430	39,008	42,935	23
US	19,707	22,643	26,934	24,961	14
China	16,035	14,932	13,954	12,017	7
Switzerland	6,580	7,137	8,080	8,428	5
Japan	5,189	5,400	6,660	6,014	3

Source: Eurostat Comext.

2.5 The EU internal market is large but fragmented

In addition to trade with countries outside the EU27, there is significant intra-EU trade, larger than extra-EU trade in 2023. The internal market is thus of major importance to EU manufacturers, with much of the food and drinks being produced locally in the countries. With respect to intra-EU trade, Germany is the largest exporter to other EU countries, but it also represents an important import market (Figure 2-14). The Netherlands, Spain, and Poland are also major internal market suppliers.

It is important to note that manufacturers in the large markets have to account for differing consumer preferences and national regulations and policies. Expert interviews indicate that the fragmented internal market leads to individual national measures and policies that impede the single market. For instance, the lack of front-of-package labelling policy for nutrition information at the EU level leads to individual countries developing their own labelling, adding to the administrative processes and cost for enterprises.

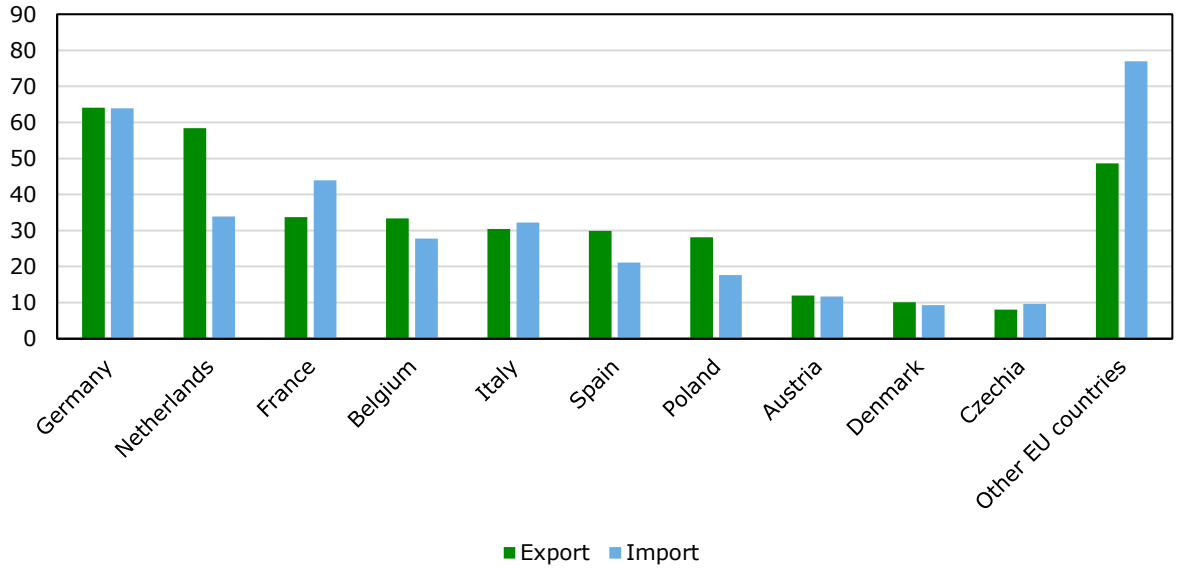

Figure 2-12 *Intra-EU exports and imports of food and drink products for the top-10 exporting EU member state and other EU countries, in € billion, in 2023*
Source: Eurostat Comext, EU trade since 2002 by CPA 2.1.

In 2023, the total final consumption expenditures on food and drinks in the EU27 amounted to €1.3 trillion, this includes all food and drink products, including manufactured products. Although the market grew fast in terms of expenses in euro, it is important to mention that this growth was primarily caused by increased prices, and that actual volumes of food consumption decreased in 2023. Between 2012 and 2023, consumption expenditure on food products, non-alcoholic drinks increased by 47% and 50% respectively. However, between 2012 and 2021, the volumes of food and non-alcoholic drinks increased by 12% and 24% respectively. But after 2021, there was a decline of volumes; food and non-alcoholic drinks volumes declined by 7% and 5% respectively (Figure 2-13). This a similar trend for alcoholic drinks.

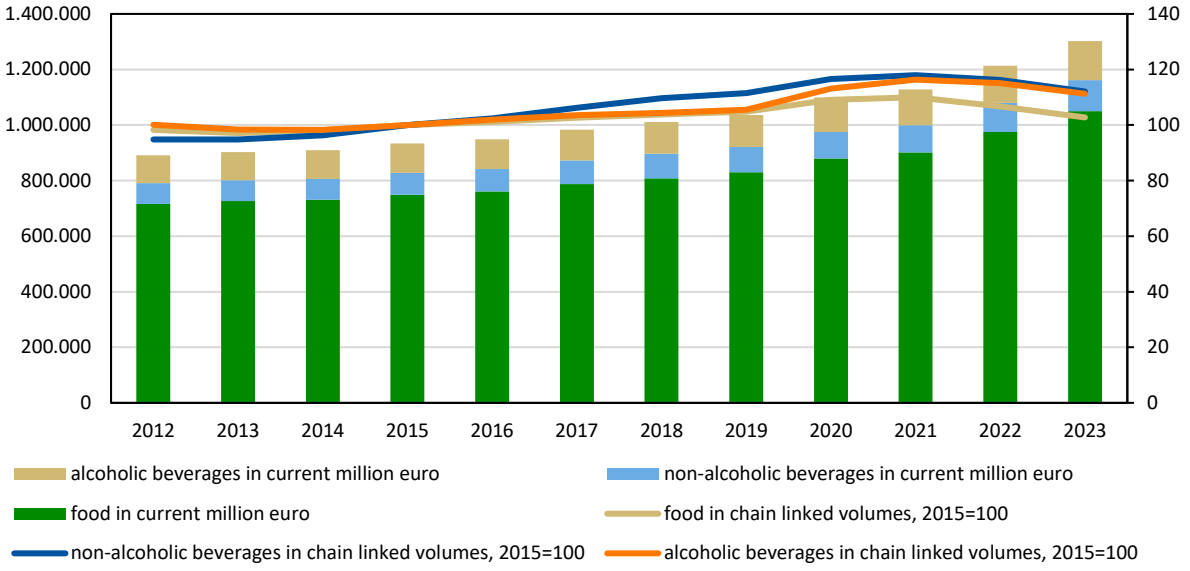

Figure 2-13 *Final consumption expenditures on food, alcoholic beverages and non-alcoholic drinks, in current € million (left axis) and in chain-linked volumes, index 2015=100 (right axis), in the EU27, in 2012-2023*
Source: Eurostat.

The largest EU27 markets are Germany, France, and Italy. On average, consumption expenditures on food and drink vary between 11% and 25% of total household expenditures in the EU27, depending on the overall income level in the various countries.

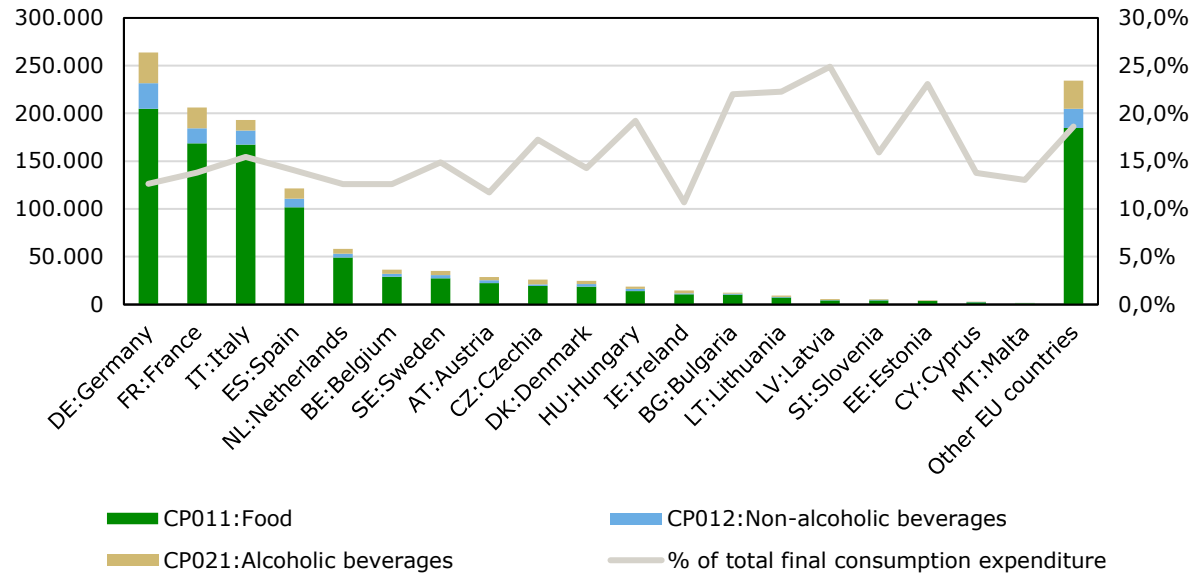

Figure 2-14 *Final consumption expenditures on food, alcoholic and non-alcoholic drinks, in € million, in 2023 (left axis), in a selection of EU countries, and the share of food and drinks in total final consumption expenditure, in % (right axis)*
Source: Eurostat.

3 Increasing turnover and costs

This chapter focuses on the financial business performance of the EU27 food and drink industry. It discusses the development of turnover, input costs, labour costs, as well as investments in tangible goods and R&D. The final section summarises company profit margins and the effects of the COVID-19 pandemic and the recent increases in commodity and energy prices, and wages.

3.1 Turnover increase mainly due to rising prices

Turnover represents the total value of market sales of goods and services to third parties. As of 2022, the total turnover of the food and drink industry in the EU27 equalled 1.44 trillion euro, and it is the highest in the manufacturing industry. Between 2008 and 2022, the food and drink industry's turnover has increased by 61% (Figure 3-1). A sharp rise in turnover is particularly observed for 2022, mainly as a result of rising food prices and inflation.

The top five sub-sectors — bakery and farinaceous products, meat products, dairy products, drinks, and the "various food products" category — account for 75% of the total turnover and 89% of all companies in the industry. In 2022, large enterprises with over 250 employees generated 60.8% of the industry's total turnover, while SMEs accounted for the remaining 39.2% according to figures from Eurostat. In 2022, the food and drink industry turnover was 50.7% higher than that of the chemicals industry and 8.1% higher than the turnover of the automotive industry.

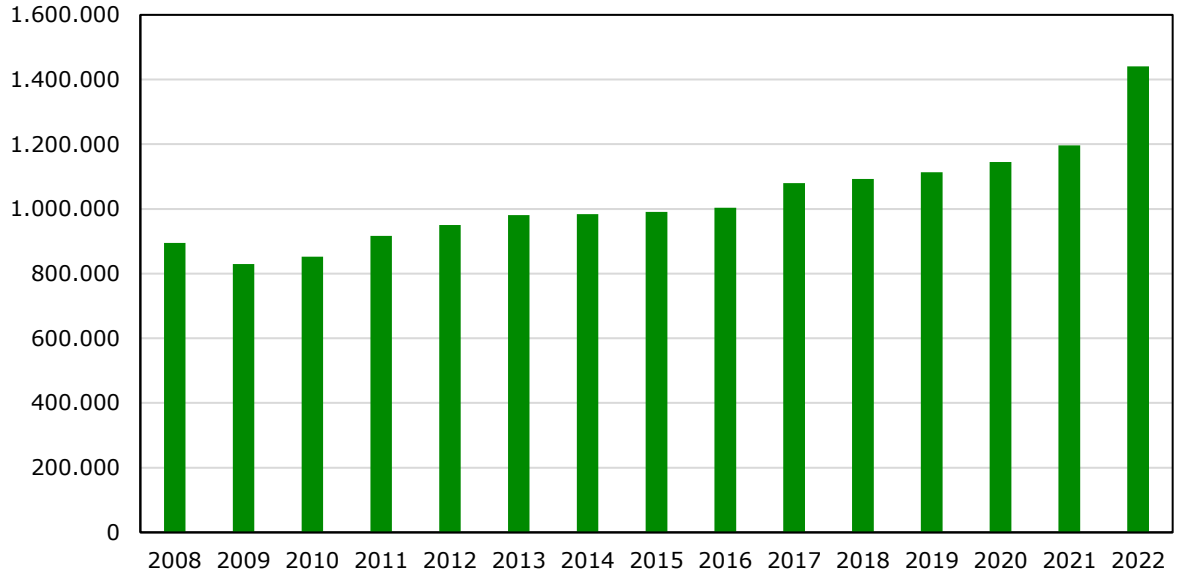

Figure 3-1 *EU27 food and drink industry turnover in € million, in 2008-2022*
Source: Eurostat.

The EU27 experienced periods of both rising and falling food prices from 2008 and 2023, with a significant surge occurring in 2022. Between 2021 and 2023, food price inflation significantly contributed to the sharp rise in turnover generated by the EU27 food and drink industry. In this period, consumer food prices increased by 19%, mainly due to high energy costs and a rise of raw commodity prices (Appendix A-2.1).[3]

[3] FAOSTAT, 2023. Average food price inflation.

The strong rise in consumer food price inflation from mid-2021 until early 2023 affected both processed and unprocessed food. However, processed food products, which account for 75% of consumer food expenditure, experienced the largest impact (Kuik et al., 2024).

In 2022, food and non-alcoholic drinks accounted for 13.6% of household expenditures, declining from 14.1% in 2021 and 14.8% in 2020.[4] This decline is mainly driven by price inflation which led to a reduction in consumption expenditures. Food accounts for 20% expenditure in the overall Harmonised Index of Consumer Prices (HICP) basket.[5] The high HICP reduced the purchasing power of households, especially those with a low income. As shown in Figure 3-2 all price indices at various stages of the supply chain rose between 2020-2022. The initial increase of consumer prices was due to the COVID-19 pandemic; supply disruptions and increasing demand for groceries from supermarkets as food services closed. Lower yields of some major commodities from climate change challenges, and increasing energy costs also contributed to the price rise. This was then aggravated by the start of the Russian invasion of Ukraine, leading to serious supply disruptions of some major agricultural commodities. At the same time, energy prices increased and together, this led to unprecedented food price increases.

In 2023, the agricultural commodity price index began to decline and so did the producer price index (PPI) of the food and drink industry while the consumer price index (CPI) remained stable. As Figure 3-2 shows, agricultural commodity prices are commonly the most volatile. Producers' (or manufactures') prices take some time to adjust because stocks are first used and contracts may have longer durations. However, later the prices of food and drink manufacturers also started to increase, followed quickly by retailers' prices (consumer prices). Part of the price increases was not passed on to consumers by the food and drink industry and retail.

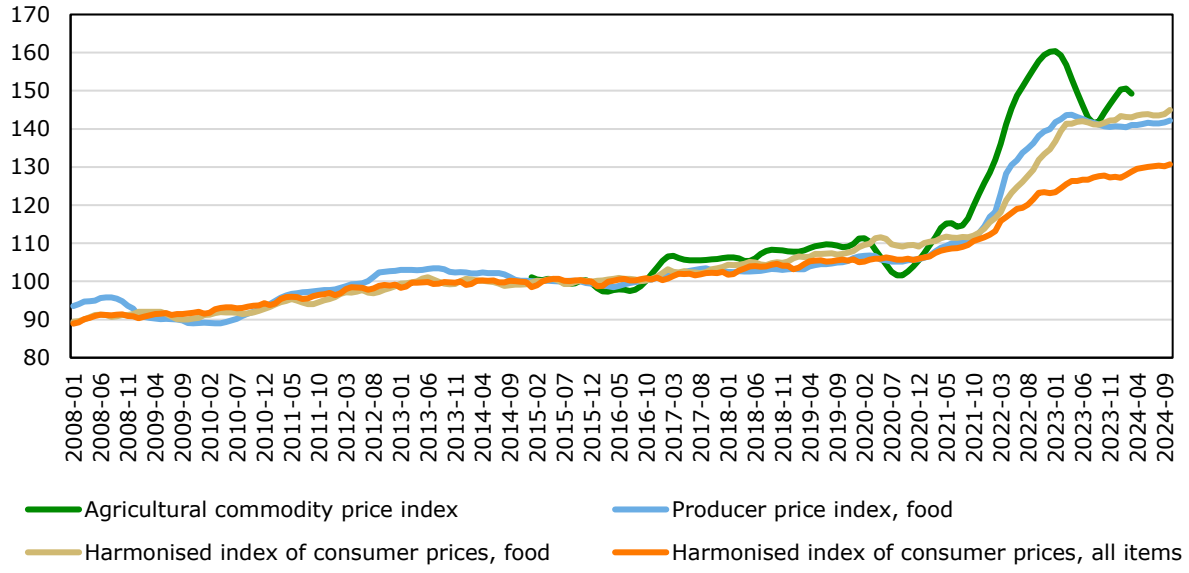

Figure 3-2 *Prices of agricultural commodities, food producer prices, food consumer prices, and overall harmonised consumer price index, 2015=100, per month in 2008-2024*
Source: Eurostat food price monitoring tool, prc_hicp_midx.

[4] Eurostat. 2023. Final consumption expenditure of households by consumption purpose (COICOP 3 digit). https://ec.europa.eu/eurostat/databrowser/view/nama_10_co3_p3__custom_15076249/default/table?lang=en Note: Alcoholic drinks account for 1.6% of household expenditures in 2022.

[5] ECB Economic bulletin, Issue 2/24. https://www.ecb.europa.eu/press/economic-bulletin/focus/2024/html/ecb.ebbox202402_04~9b36bced23.en.html

Box 2 - The COVID-19 pandemic had far reaching effects on the EU food and drink industry

Because of the 2020 COVID-19 pandemic supply chains were severely disrupted, with border closures, transportation delays, and labour shortages creating logistical challenges. At the same time, demand patterns shifted dramatically. The closure of restaurants, bars, and cafes during lockdowns resulted in a sharp decline in foodservice sales, while retail sales surged as consumers turned to home cooking and stockpiling essentials.

Some sectors were hit particularly hard. For example, there were temporary factory closures and bottlenecks in meat processing, while potato processing for fries saw a considerable decline in demand because of foodservice closures, leading to stockpiles of frying potatoes and volatile prices.

Governments across the EU introduced various forms of aid to support the industry, including grants, tax relief, and wage subsidies. Despite these measures, the sector experienced a significant drop in turnover during the early months of the pandemic. However, innovation and adaptation became key to recovery. By 2021, turnover had started to recover, driven by the easing of restrictions and shifts in consumer behaviour toward convenience and sustainability. The pandemic underscored both the vulnerabilities and the resilience of the food and drink industry, highlighting the need for robust supply chains, flexible business models, and strategies to address future disruptions.

3.2 Dramatic increase of input costs from 2020

Europe is dependent on the import of commodities such as cocoa, coffee and palm oil. Between 2019 and 2022, commodity prices reached record highs. In that period, the price cocoa increased by 126%. Subsequently, the price of some commodities such as palm oil, soybeans and maize then decreased between 2022 and 2023 (Figure 3-3) while prices of other commodities, such as, cocoa and coffee continued to rise in 2023 (Figure 3-4). However, despite the decrease, the prices remain above pre-pandemic levels. For instance, the prices of soybeans and palm oil are respectively 68% and 53% higher after the drop in 2023 compared to pre-pandemic (2019). Expert interviews allocate this further rise in prices to climate change impact in some sourcing countries as well as to political instability. According to the International Food Policy Research Institute (IFPRI), the current price spike was triggered by intertwined effects of climate change and El Niño, which led to erratic rainfall and higher temperatures, for instance, in cocoa-growing regions (Tabe-Ojong, 2024). Furthermore, national regulatory policies in producing countries further contribute to commodity price increase, for instance, 2023 saw a 50% increase of the cocoa farm-gate price in Cote d'Ivoire.

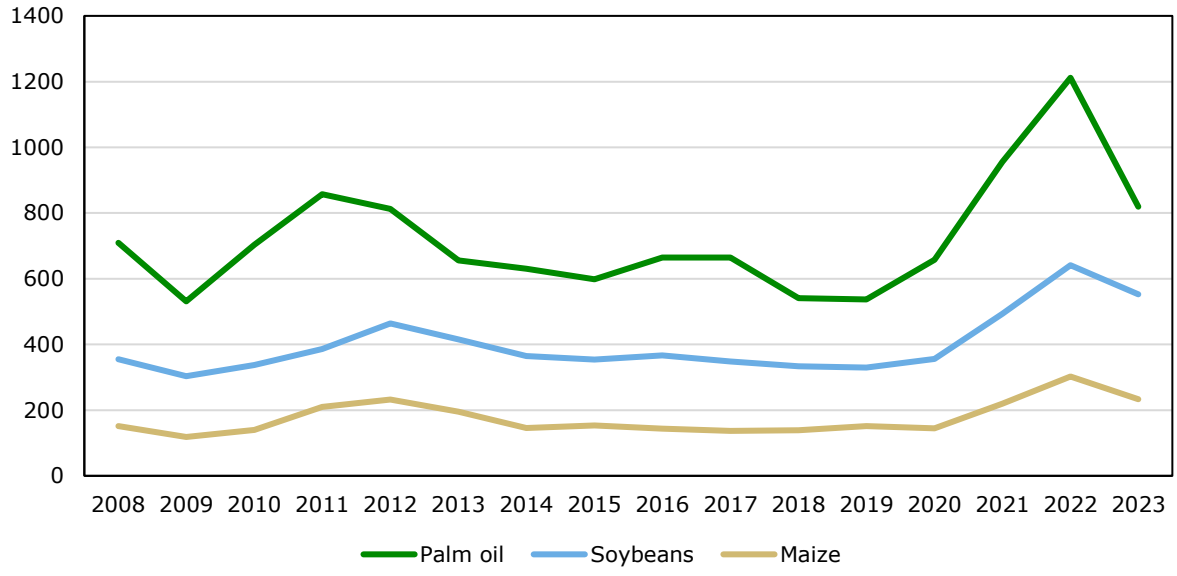

Figure 3-3 *Commodity price trends for palm oil, soybean and maize, in € per metric ton, in 2008-2023*
Source: World Bank Commodity market.

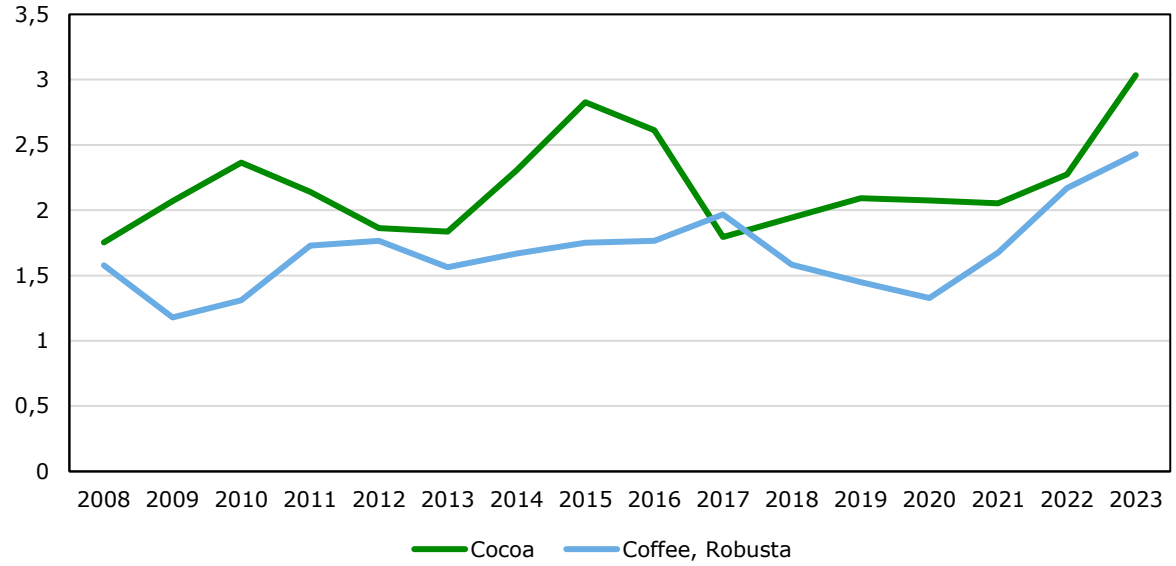

Figure 3-4 *Commodity price trends for cocoa and coffee, in € per kg, in 2008-2023*
Source: World Bank Commodity market.

The food and drink industry was the fourth largest energy consumer by industrial sectors in 2022.[6] Energy input refers to electricity, fuel (including petrol, diesel, liquid fuel), and gas. Gas and electricity make up a large share of energy inputs for processed food (about 80%).[7] Figure 3-5 shows a relatively stable price of gas and electricity for non-household consumers from 2008 to 2020, with a price surge between 2021 and 2023. Eurostat data shows a 97% and 217%increase of electricity and gas prices between 2021-S1 and 2022-S2, respectively.[8] Prices then declined between 2022 and 2023, but remained above pre-pandemic prices. In the first half of 2024, non-household electricity prices were still 57% higher than pre-Covid (2019-S2) and for gas it was even 98% higher. Russia supplied the largest share of energy to Europe, with 22.9%, followed by the US, with 8.5%.[9]

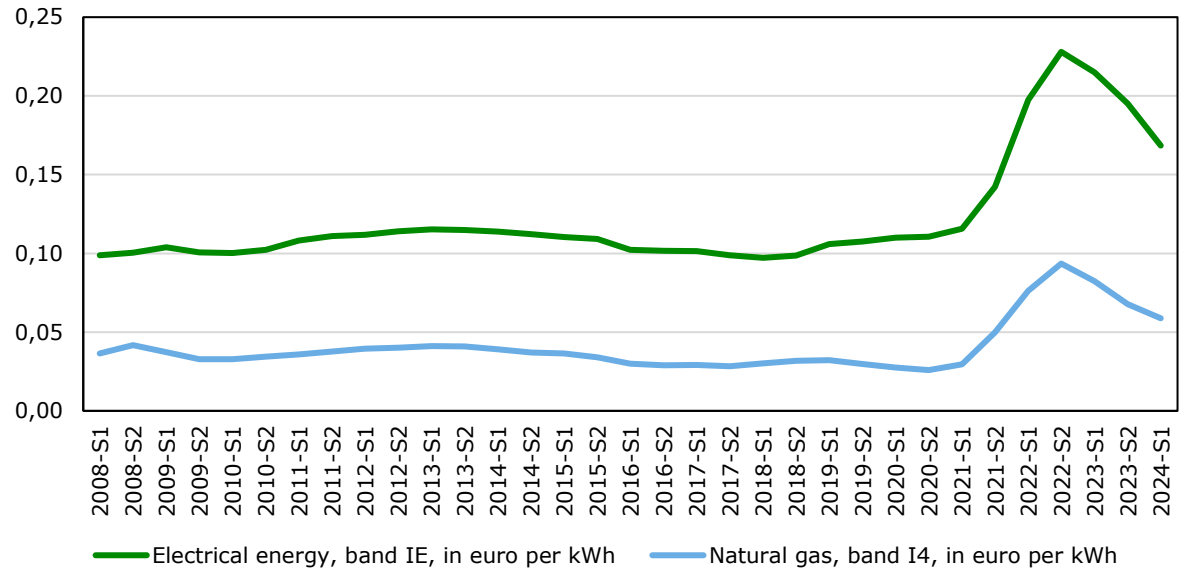

Figure 3-5 *Bi-annual electricity and gas prices for EU27 non-household consumers, all taxes and levies included, in € per kWh, in 2008-2024 (first half)*
Source: Eurostat, nrg_pc_203, nrg_pc_205.

[6] Eurostat statistics explained, 2024. Final energy consumption in industry - detailed statistics. Final energy consumption in industry - detailed statistics - Statistics Explained (data includes tobacco)
[7] ECB Economic bulletin, 2024. What were the drivers of euro area food price inflation over the last two years?
[8] Eurostat, 2024. nrg_pc_205 (Statistics | Eurostat); nrg_pc_203 (Statistics | Eurostat)
[9] ECB, 2024. https://www.ecb.europa.eu/press/economic-bulletin/focus/2022/html/ecb.ebbox202204_01~68ef3c3dc6.en.html

Similarly, the prices of gas oil for automobiles, heating oil and other fuels have increased considerably. The average EU price of gas oil for automobiles including taxes increased by 67% between the beginning of January 2008 and the end of June 2022, and heating oil increased by 106% over the same period. The fuel prices have somewhat decreased after that, but remained above pre-pandemic levels (Figure 3-6).[10] For example, the price of gas oil de chauffage heating gas oil Heizol is 98% higher in February 2024 than in March 2020 (pre-pandemic). In 2020, the price declined due to the pandemic and lockdown. However, this steadily increased from 2021 and peaked in 2022. As for electricity and gas, the surge in gas oil price in 2021-2022 was exacerbated by the Russia-Ukraine war. The imposition of policy sanctions by the EU on Russia led to a 23% reduction of oil supplies from Russia. Fuel prices in Europe are now among the highest in the world (IEA, 2024).

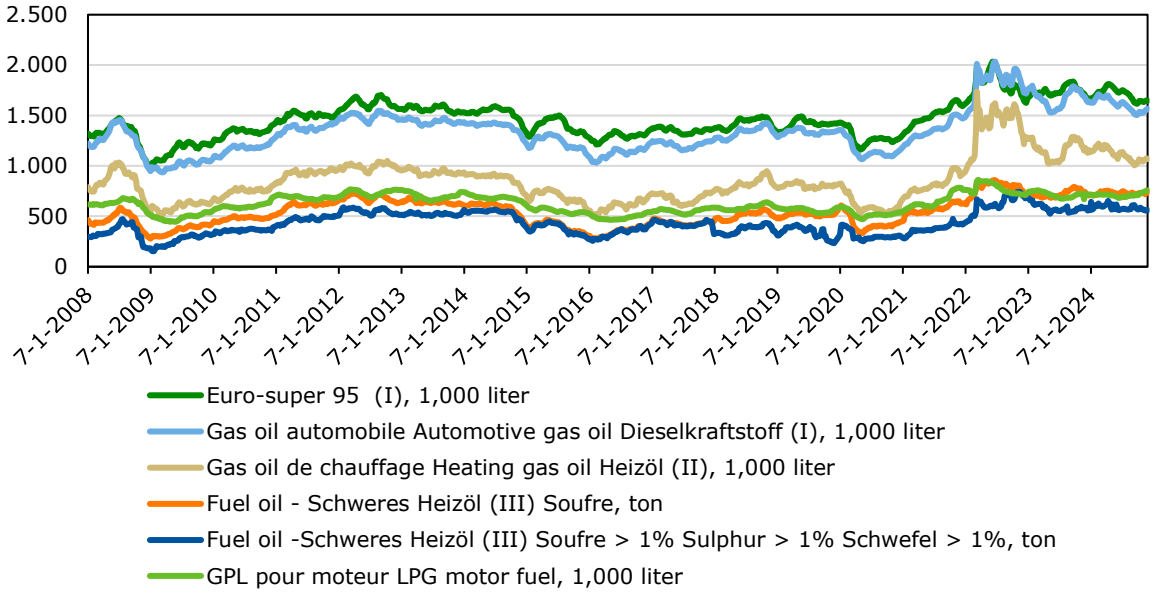

Figure 3-6 *Average fuel prices in the EU, with taxes, in € per 1,000 litre, in 2008-2024*
Source: EU weekly oil bulletin.

3.3 Labour productivity is relatively low but labour costs increased over time

Between 2008 – 2022, labour productivity per person employed in the EU27 food and drink industry grew by 41%**.** The average annual growth rate of labour productivity in the EU food and drink industry, measured as gross value added per person employed per year, was 2.2%. By 2022, labour productivity reached €56,331 per person employed in the food and drink industry. There is, however, a major difference between food and drink, with a labour productivity in the drink industry of €103,722 and that of the food industry just €51,336.

Labour productivity of the food and drink industry combined was 30% lower than the overall manufacturing industry which was €80,638 in 2022. Furthermore, the labour productivity of the food and drink industry is much lower (58%) than that of the chemical and chemical products industry €133,140, and 77% lower than the ICT manufacturing €242,850. Moreover, labour productivity growth was 23% lower than that of the manufacturing industry (64% growth rate) (Figure 3-7). The major contributing factors to the low productivity level are the low adoption of innovations and technologies which impacts the competitiveness of the EU27 compared to countries like the US and China where larger investments are being made in automation and digitalisation by the industry. SMEs play an important role in terms of the total value added generated by the EU food and drink industry, however their low level of efficiency and investment in new technologies contribute to the low growth rate.

[10] European Commission. November 2024. Weekly oil bulletin. Weekly Oil Bulletin

Also, it is important to note that labour productivity varies per country. While at the EU27 level, labour productivity is relatively low, countries such as Belgium, France and the Netherlands have much higher productivity levels, with €101,000, €66,000 and €118,000 in 2022, respectively. The overall food and drink labour productivity of the EU27 is about half that of the productivity level in the Netherlands.

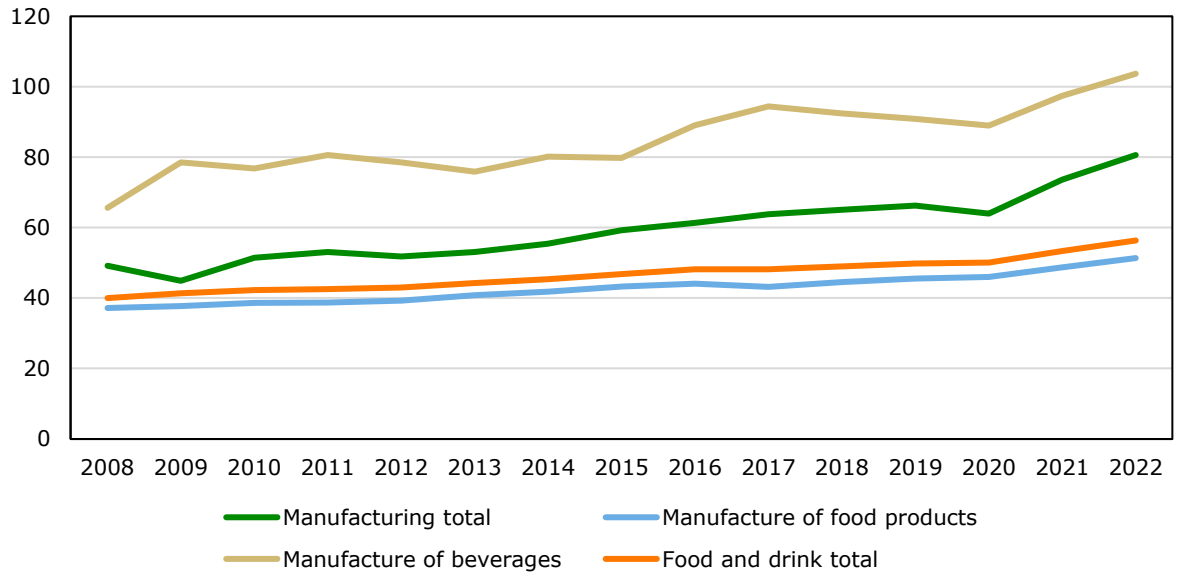

Figure 3-7 *Labour productivity in the EU27 food and drink industry expressed in gross value added per person employed, in € thousand, in 2008-2022*
Source: Eurostat sbs.

The average personnel costs in the food and drink industry increased by 36% between 2008 and 2022. These include wages, salaries, employers' social security, taxes, employees' social security contributions retained by the employer, as well as the employer's compulsory and voluntary social contributions per employee.[11] Between 2008-2014, the average personnel cost of the food and drink combined increased moderately, becoming somewhat more volatile after 2014. Expenses are generally 45-50% higher in the drink industry than the food industry, largely due to the remote location of the industries as well as the nature of the labour activities. The average personnel costs for the food and drink industry combined are 4.6 percentage points lower than the average for the EU manufacturing industry as a whole in 2022. This is in part due to the higher automation in other manufacturing industries and higher technical jobs that require higher wages in high-tech manufacturing jobs (i.e. ICT manufacturing).

[11] Glossary: Personnel costs – SBS (Glossary: Personnel costs - SBS - Statistics Explained). Note: Data on average personnel costs for 2008-2020 have been combined with employee benefits expense data for 2021-2022 for the EU-27.

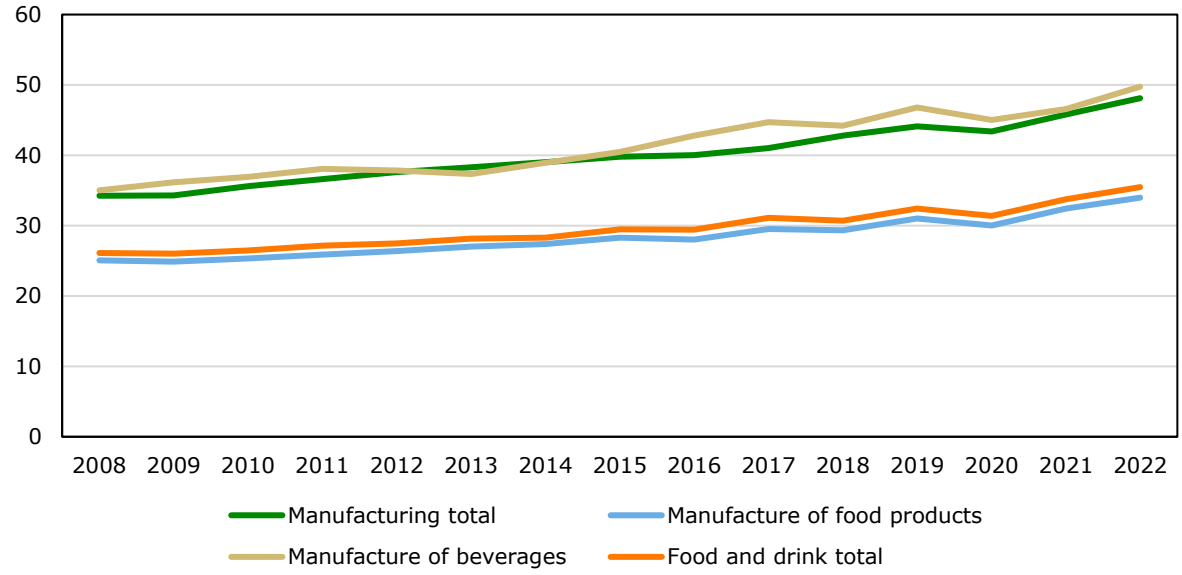

Figure 3-8 *Average personnel cost of the EU27 food and drink industry, in € thousand per person per year, in 2008-2022*
Source: Eurostat sbs.

As a large employment sector, the food and drink industry also contributes significantly to social security. The industry's total social security payments increased by 48%, from €23 billion in 2008 to €34 billion in 2022 (Figure 3-9). This accounted for 11.1% of overall social security payments made by the EU manufacturing industry, which is lower than the 15.8% share of employment of food and drink in manufacturing (see chapter 2.2). [12] This disparity indicates that food and drink enterprises contribute less to social security per worker compared to other manufacturing industries. This is a major concern as it already puts pressure on the ability of the food and drink industry to compete with other industries for labour and capital. In 2021, the average social security tax rate for European employers was 20%, with it being highest in France (40%), followed by Slovakia (35.2%), and Czech Republic (33.8%) (EuroDev, 2024).

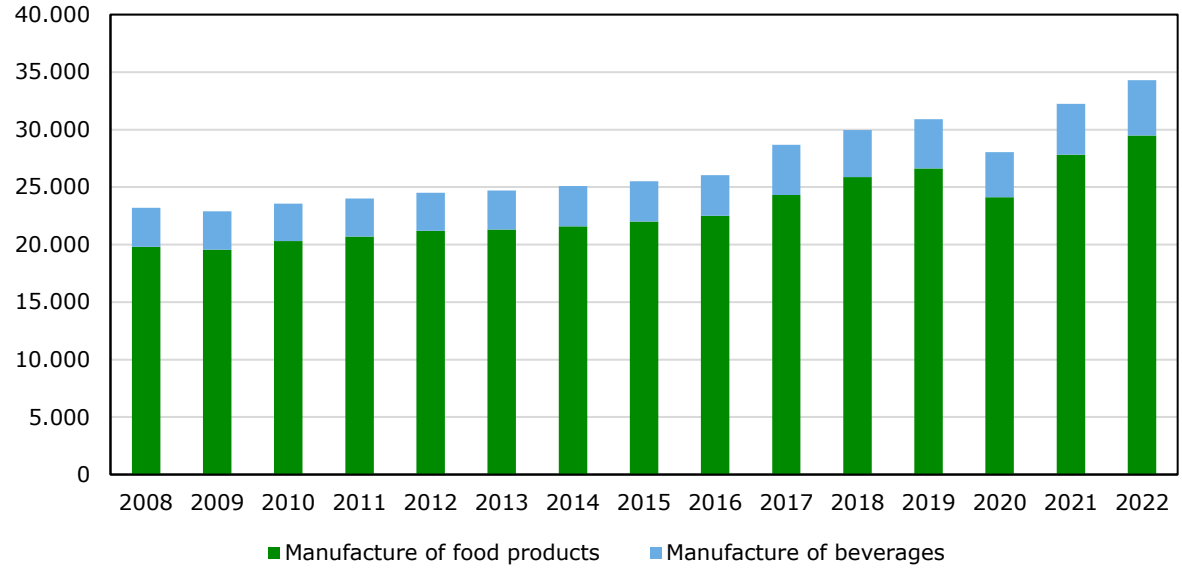

Figure 3-9 *Social security costs of the EU27 food and drink industry in € million, in 2008-2021*
Source: Eurostat sbs.

[12] Estimate based on Eurostat sbs data.

3.4 Growth of investments in tangible goods, R&D, and Foreign Direct Investments; future uncertainties

The food and drink industry has the largest gross investment in tangible goods (e.g., machinery, equipment, buildings) of all the EU27 manufacturing industries. Figure 3-10 shows that between 2008 and 2022, gross investment in tangible goods increased by about 41%, reaching an estimated total of €49 billion in 2022. This is 14.8% of the total gross investment in tangible goods by the manufacturing industry. Even as strong investments were made in tangible goods, labour productivity remains relatively low, which can be partly explained by the fact that companies are not investing heavily into process innovation and digitalization. The substantial investment in tangible goods is linked to the increasing number of enterprises, the increasing demand for food and drink products and expansion on the internal and external markets. In comparison, the gross investment in tangible goods in pharmaceutical products and preparations industry (€15.6 billion) and fabricated metal industry (€27.7 billion) are much lower than the food and drink industry.[13]

According to Stundzienne and Saboniene (2019), there is a positive relationship between apparent labour productivity and investment in tangible goods for the European manufacturing industry. As such, the increase of investments in tangible goods contributes to the increase in labour productivity. But investments have increased at a similar pace to total turnover, and the investment rate has been stable at 14%. With investments growing faster than manufacturing total, and labour productivity lagging, there seems to be a challenge of converting investment in tangible goods into additional value added. In depth analysis, however, would be required to obtain a good understanding of the challenges linked to the investments.[14]

Expert interviews revealed that between 2023 and 2024, industry stakeholders either decreased or put a halt to investments in the food and drink industry due to the uncertainty surrounding policies. At the EU level, changing policies are reducing private sector investment confidence. As such, investment in the food and drink sector over the next five years may be limited if no clear policy visions are adopted and implemented.

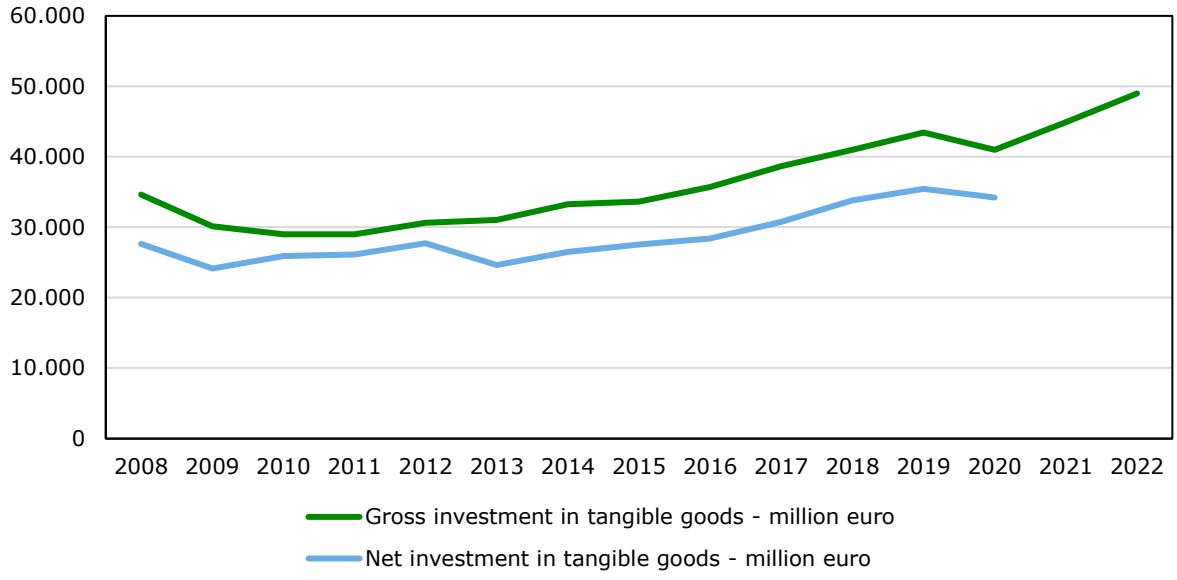

Figure 3-10 *Gross and net investment in tangible goods by the EU27 food and drink industry in € million, in 2008-2022*
Source Eurostat sbs, missing data for some countries interpolated.

As for gross investments per person employed, investment per food and drink industry employee also increased by 25% to €10.3 million, however this growth was 10 percentage points lower than that of

[13] Eurostat, 2024. sbs_na_sca_r2
[14] Eurostat, 2024. sbs_na_sca_r2 Statistics | Eurostat

manufacturing total (Figure 3-11). The drink industry has a higher labour productivity and invests considerably more per person employed. The high investments in 2008 and 2009 were largely due to significant investments in Spain and Poland.

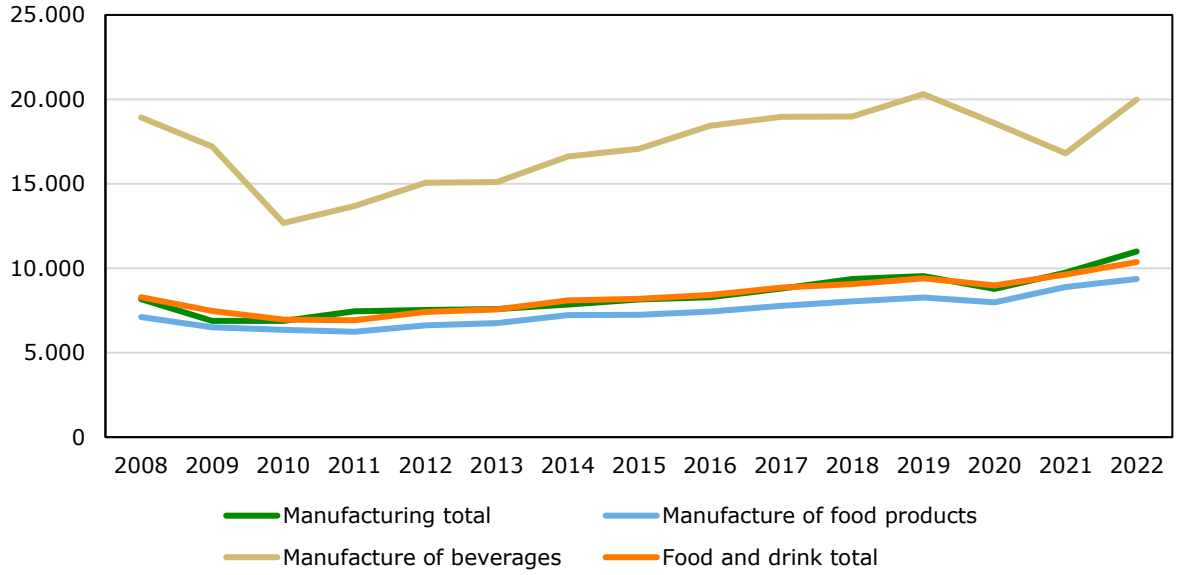

Figure 3-11 *Investment per person employed in the EU27 manufacturing and food and drink industry, in € thousand, in 2008-2022*
Source: Eurostat sbs, missing data for some countries interpolated.

Between 2008 and 2022, the EU27 R&D expenditure increased by 63% from €1.9 billion to €3.1 billion (Business enterprise R&D data, 2024). Figure 3-12 shows that in 2021/2022 companies in France, the Netherlands and Germany contribute to nearly half of the R&D expenditures in food and drink within the EU-27.[15] The top seven countries, including Italy, Belgium, Spain, and Poland, together accounted for 82% of the total expenditures. Despite the increase in R&D expenditure, according to the Research and Innovation Investment Gap Study (2023), public funding for food innovation is 7% of total national funding, considerably lower than public funding for circularity and resource efficiency (16%), or nutrition for sustainable and healthy diets (23%).

[15] Note: Tobacco is included in the data

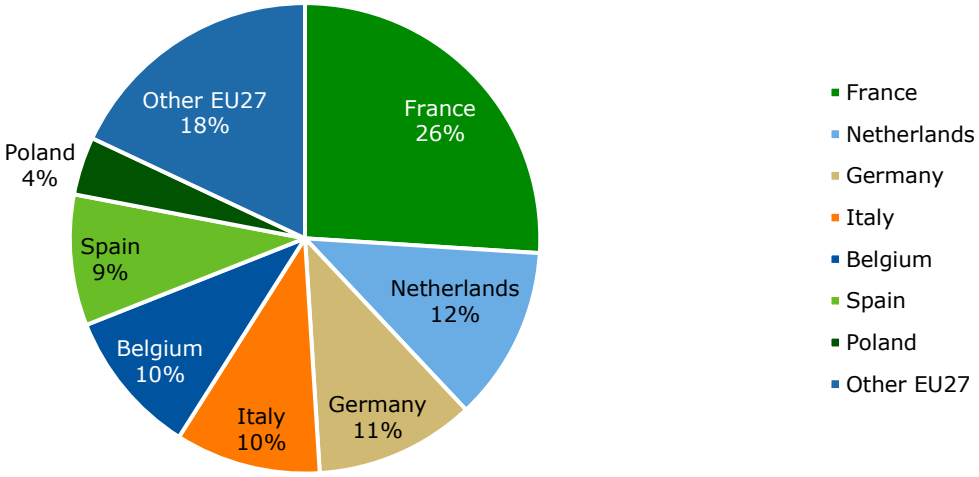

Figure 3-12 *R&D expenditures of food and drink and industry, in % of total EU27, estimate for 2021-2022*
Source: Eurostat, OECD, Statistics Netherlands, imputation Wageningen Social & Economic Research.

Between 2015 and 2022, inward foreign direct investment (FDI) in the EU27 food and drink industry grew by 24%, from €135 billion to €167 billion. Furthermore, the 2022 inward FDI accounted for 18% of the total inward FDI of the manufacturing industry. In 2022, the food and drink industry attracted the second largest share of foreign direct investments of the EU27 manufacturing industry, after the pharmaceutical industry with €295.6 billion (Appendix 2); the latter high investment is mostly linked to the COVID-19 pandemic. Figure 3-10 shows that the inward FDI in the EU27 food and drink industry grew from 2016 to 2019 but remained stable between 2019 and 2022. The stable FDI after 2019 is partly linked to uncertainties following the pandemic, and investment shifting to the pharmaceutical industry.

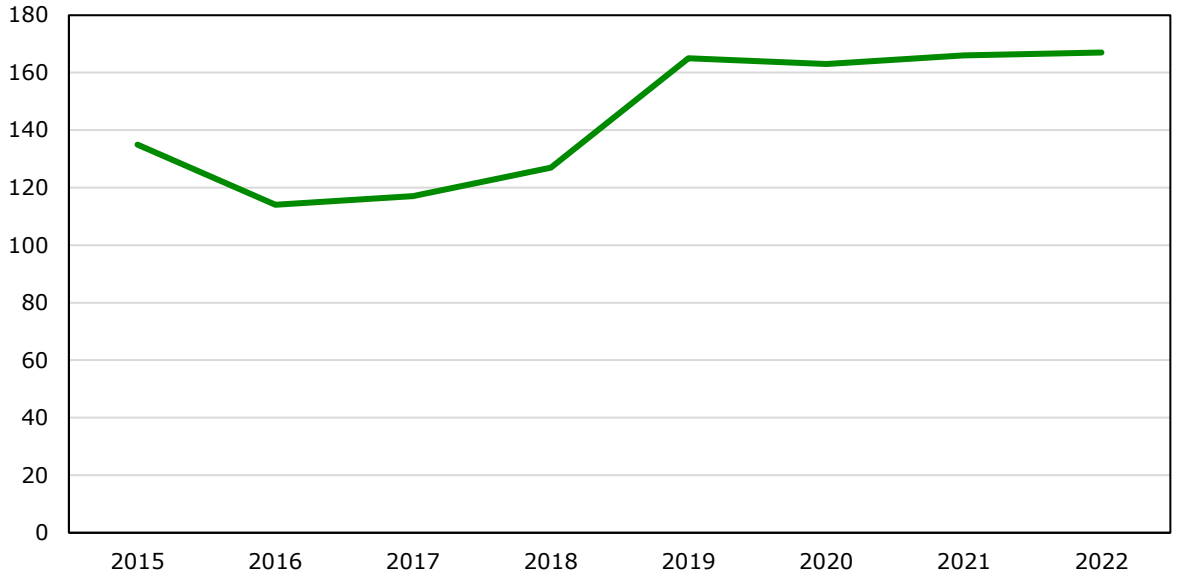

Figure 3-13 *Inward foreign direct investment in the EU27 food and drink industry, in € billion, in 2015-2022*
Source: Eurostat bop_fdi6_pos.

3.5 Profit margins for a long time stable at around 8%; now under pressure from increasing costs

The gross operating rate, defined as the gross operating surplus divided by turnover, is an indication of profitability, which includes depreciation and taxes. In 2022, the gross operating rate for the EU-27 food industry was 6.5%, and 14% for the drink industry (Eurostat sbs), with an overall estimated rate of 7.5%. From 2008-2022, the total EU27 gross operating surplus increased from about €67.7 billion to just over €108 billion, with a temporary dip in crisis years 2011-2012. This growth in operating surplus is, however, due to growth in turnover, and not because of an increase in overall industry profitability. So the enterprises are not necessarily more competitive or efficient, but they have increased sales. As already established, the costs are rising, labour productivity lower and turnover is driven by increased prices. The data shows that overall profit margins of the food and drink industry have fluctuated at around 8% since 2014. In 2020 and 2021, companies profited from an increased demand for packaged products and sale during the lock-downs. This is especially notable in 2021, when profits were higher than in previous years. However, following the increasing commodity prices and energy and labour costs, in 2022, profit margins declined by 0.89 percentage points, and pressure on profits remained high in the following years. Published annual reports of some major food and drink companies confirm the difficulties faced by the industry in 2023 and 2024.

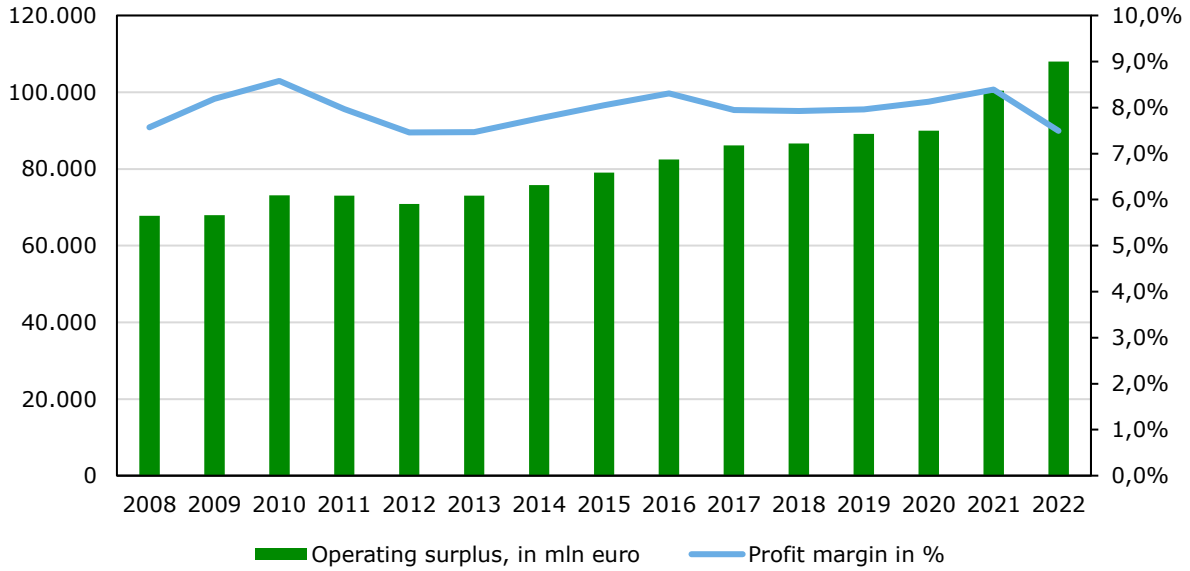

Figure 3-14 *Gross operating surplus in the EU27 food and drink industry, in € million and in % of turnover, in 2008-2022*
Source: Eurostat sbs.

Large differences in the gross operating rates are found between the various industry branches and between companies and EU27 countries. The profit margins are generally higher in drink manufacturing than in food manufacturing. This is a reflection of the Out-of-Home channel, where margins are higher, due to value-added services, lower price sensitivity, less competition, etc., than in the retail channel.[16] In the manufacturing of distilled and blended alcoholic drink, margins as a percentage of turnover exceeded 20% in 2022, with beer manufacturing at a 15% gross operating rate. For the food manufacturing industries, gross operating rates are lower than for manufacturing as a whole. In the manufacturing of meat products, dairy, processed vegetables, and prepared animal feeds, the gross operating rates in percent of turnover were around 5%. In euro value, the other food products, sugar, cocoa, tea and confectionery had the highest gross operating surplus at €22 billion in 2022, followed by processing of meat and meat products at €13.9 billion.

[16] Note: Out of Home (OOH) advertising is a type of visual media that reaches audiences anywhere outside of their home.

Additionally, SMEs do not have the same ability to pass on costs as do large enterprises, so this results in pressures on profit margins. Furthermore, according to the 2023/2024 SMEs report (Katsinis et al., 2024), the initial negative effect of inflation on profitability was slightly greater than the subsequent positive effect.

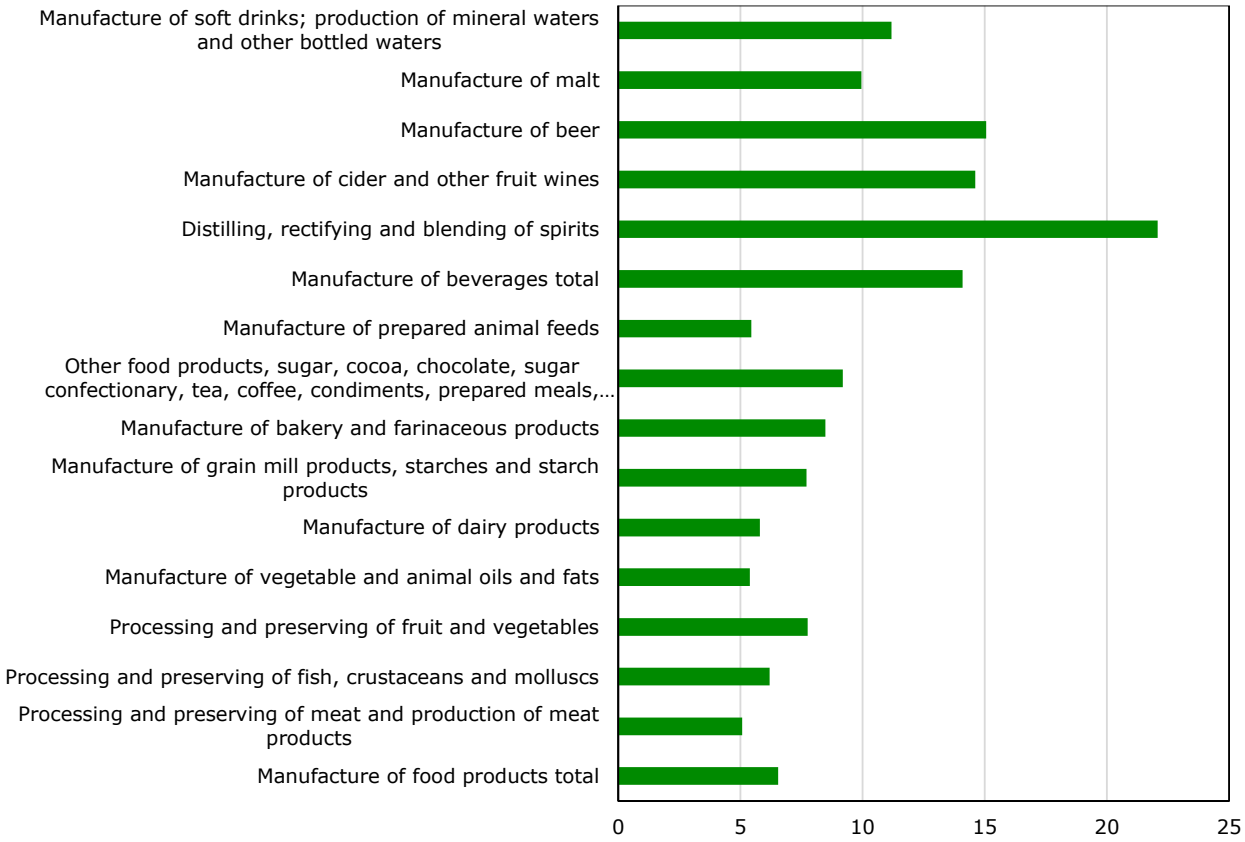

Figure 3-15 *Gross operating rates of the EU27 food and drink industry per branch, manufacturing total, in %, in 2022*
Source: Eurostat sbs.
Note: processing and preserving of fish and manufacture of dairy products are 2020 data.

4 The food and drink industry plays a crucial role in a highly interconnected chain

The supply chain of agri-food products consists of several stages, starting with the agricultural sector, on to raw primary food processing, the food and drink industry, through wholesale and retail to finish at food service. The agricultural sector includes farming, forestry and fishery, and the retail industry entails the wholesale and retail of food and drink products. This chapter compares the structure and the economic performance of the agricultural sector and retail with that of the food and drink industry.

4.1 Strong links and interconnected industries in the agri-food chain

Figure 4-1 illustrates the four main industries making up the agrifood chain. The food and drink industry plays an important role as a buyer for upstream agricultural products and as a manufacturer to supply downstream sectors. Other related industries of the agrifood chain include the logistics and transport industry, storage and warehousing, packaging, and the service industry.

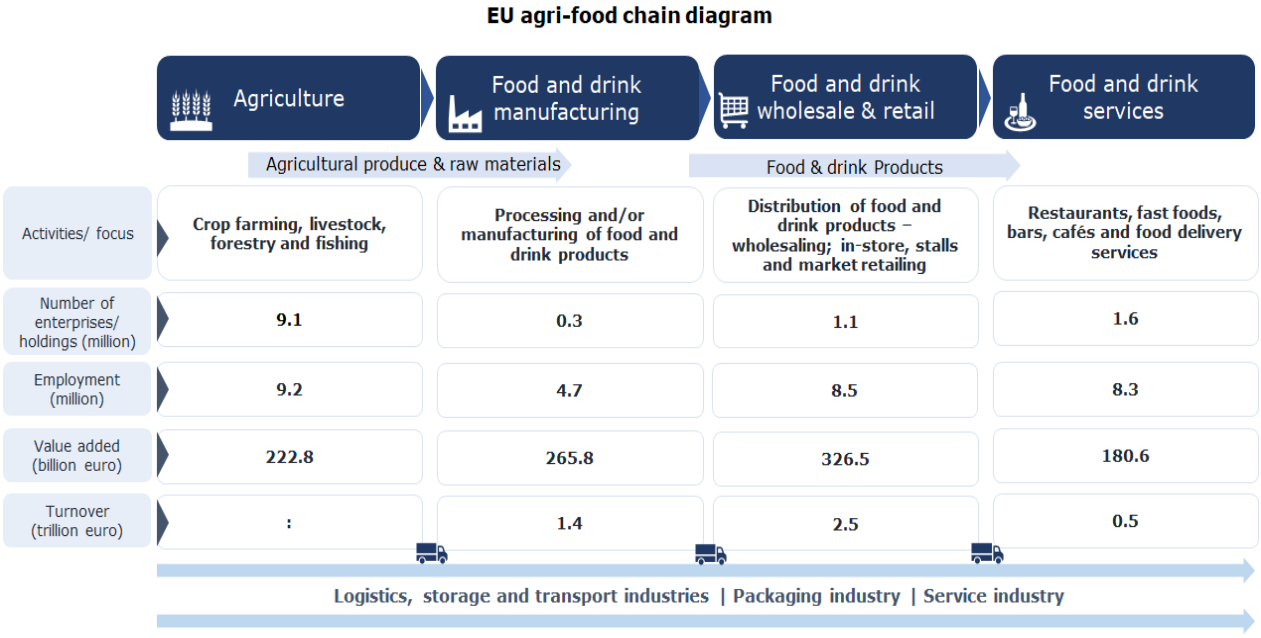

Figure 4-1 *Agri-food chain diagram of the EU, in 2022*
Source: Eurostat ef_m_so_sh; Nama_10_a64_e; aact_eaa01.

The food and drink industry can be further separated into primary and secondary processing. In the first stage, raw agricultural inputs are transformed into edible ingredients to make food products. Commonly, this includes processes of milling, shelling, grinding, pressing or drying, cooking and canning, and slaughter for meat products. The outputs from primary food processing serve as inputs for further manufacturing of food and drink products. In secondary processing, ingredients are combined to make food products ready to be sold to consumers. Secondary processing includes, amongst others, bakeries, dairy desserts, processed meat products, but also specialty foods like sports nutrition.

4.2 More than 3.5 million indirect jobs in EU agriculture

The Eurostat Input-Output tables shed some light on the demand that the food and drink industry generates for agricultural products and other inputs. [17] In 2022, the food and drink industry used about €268 billion of inputs directly from agriculture, hunting and related services, of which € 242 billion came from domestic EU sources, and €26 billion from imports.[18] In monetary terms, in 2022, 90% of agriculture input expenses were made within the European agriculture sector. Figure 4-2 shows the division of intermediary consumption of the EU27 food and drink industry by type of industry the inputs originate from.

The food and drink industry is embedded in EU27 country economies thanks to its relationships to other industries. Food and drink processing industries are built around specific agricultural production areas, such as sugar and potato processing industries, dairy processing, and wine. Such industries have long histories and trade relationships with supplying farmers that go back generations. In that sense, the business success of farmers and food and drink industries are often interdependent.

In addition, food and drink companies use many products that have been transformed by primary food processing companies and processed ingredients from other food companies. The data show that more than half of the input value consists of agricultural and food products, of which most comes from the EU27 internal market. In addition to agricultural raw commodities and processed food ingredients, the industry also uses inputs from intermediary goods and services, most notably the wholesale trade services (11%), land transport services (4%), as well as warehousing (2%) and energy (2%). Other important inputs are packaging material, and administrative, financial and legal services.

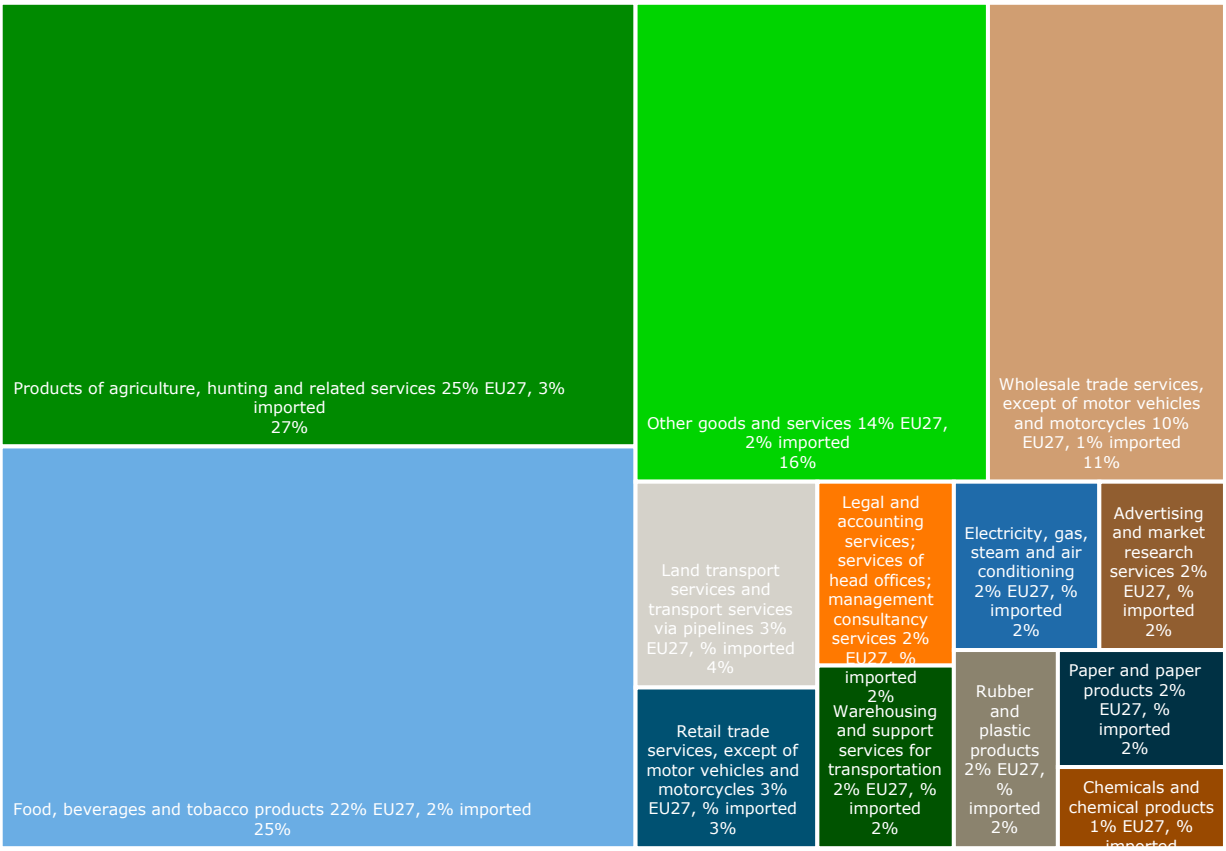

Figure 4-2 *Intermediary consumption by the EU27 food and drink industry by product, in %, in 2022*
Source: Eurostat.

[17] Eurostat Use table at basic prices, https://doi.org/10.2908/NAIO_10_CP1610; In this data, tobacco is included under food, beverages and tobacco.
[18] Note: This includes raw agriculture products and live animal and not the products such as dairy, which are processed products.

The data from the input-output tables can also be used to make an estimate of indirect labour associated with the food and drink industry. Based on direct demand for inputs from EU27 agriculture, hunting and related services of €244 billion in 2022, this represents about 3.5 million fulltime jobs,[19] about 39% of total EU27 agricultural employment. Additional indirect labour effects are also present in all the other related industries, both in the EU and through imported products and services.

4.3 EU farms, mostly small-sized face multiple difficulties

In 2020, there were 9.1 million farm holdings in the agricultural sector, with 93.5% being family owned.[20, 21] The average size of EU farms was about 17 hectares with €40,000 output. Semi-subsistence, small and medium size farms account for 97% of total farms (Appendix 2). Large farms with a standard annual output of over €250,000 only account for 3.3% of total farms. Broadly, this is similar to the structure of the food and drink industry, where SMEs play an important role, accounting for the majority of enterprises (99% in manufacturing).

Between 2007 and 2020, the average farm size in the EU increased and the number of farms declined by 33%. The majority of farms that were closed being small and medium-sized. This decline is due to several factors, including rising production costs, decreasing real income, no farm business successors, environmental constraints, cumbersome administrative procedures, and changing agricultural policies.[22]

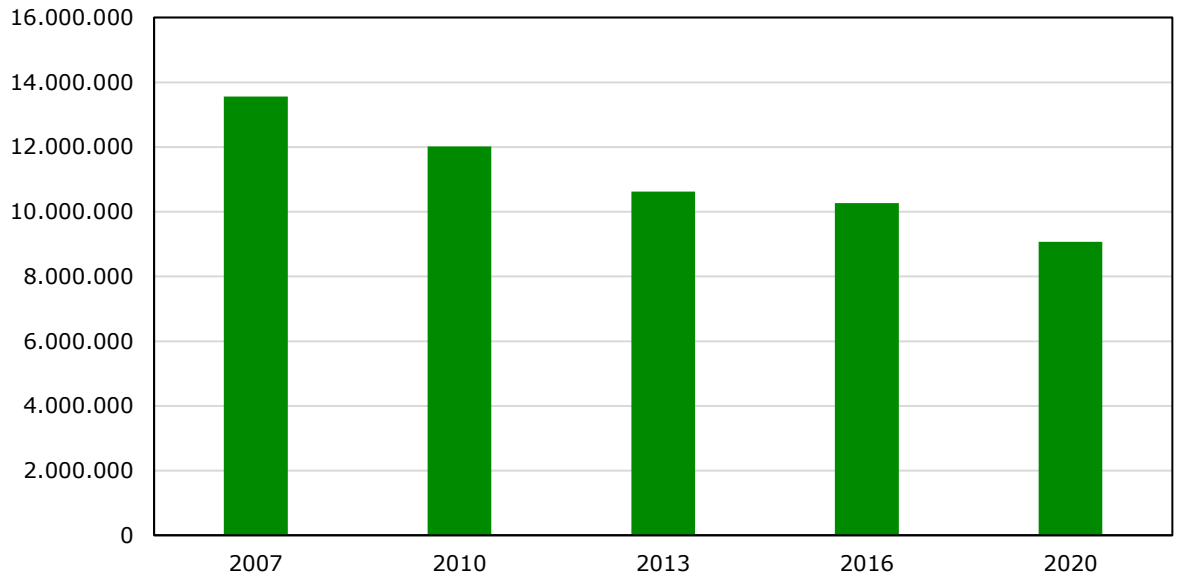

Figure 4-3 *Number of holdings in the EU27 agricultural sector, in 2007-2020*
Source: Eurostat ef_lus_main.

The EU27 agricultural sector employs the largest number of persons (9.2 million) in the agri-food chain. In 2023, the number of annual work units (AWU) was 7.3 million, a decline from 7.7 million in 2022. This high number is due to multiple labour-intensive sub-divisions, including crop and animal production, forestry,

[19] Based on total agricultural output of the EU27 agricultural industry of €537 billion in 2022 and the total number of work units in the EU27 agricultural sector of 7.7 million in 2022, giving an average of €70,000 output per worker. Eurostat data: for production value https://doi.org/10.2908/AACT_EAA01, for work units https://doi.org/10.2908/AACT_ALI01, for input-output data https://doi.org/10.2908/NAIO_10_CP1610

[20] Family farms are defined as those on which 50% or more of the agricultural labour force is provided by family members. (Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farms_and_farmland_in_the_European_Union_-_statistics). Agricultural Census 2020.

[21] Latest data available for number of enterprises in the agriculture industry is from 2020.

[22] Farms and farmland in Europeans Union – Statistics. (2022). https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farms_and_farmland_in_the_European_Union_-_statistics

fishery and to the manual labour requirement. In contrast, the skilled labour requirement for the manufacturing industry is much higher than that of the agricultural sector. The training requirement for farm managers is low; only 10.2% of the EU farm managers have followed agricultural training programmes. This is due to the large share of family farms that rely on hands-on experience rather than structured training. In addition, some EU countries (e.g., Netherlands, Denmark) have strong agricultural education systems, while others (e.g., Romania, Bulgaria) have fewer formal training programs available (Zaalmink and de Groot, 2022).

The level of agricultural sector employment declined by 24% between 2008 and 2022. One of the major reasons is the decline of the number of EU farms. Family farms employ 77.9% of the agricultural labour force, and are the most impacted by the economic challenges that lead to foreclosures. Furthermore, the increased adoption of mechanisation and the choice of "attractive" job opportunities in other sectors also contribute to declining employment. This contrasts with the upward employment trend in the food and drink industry.

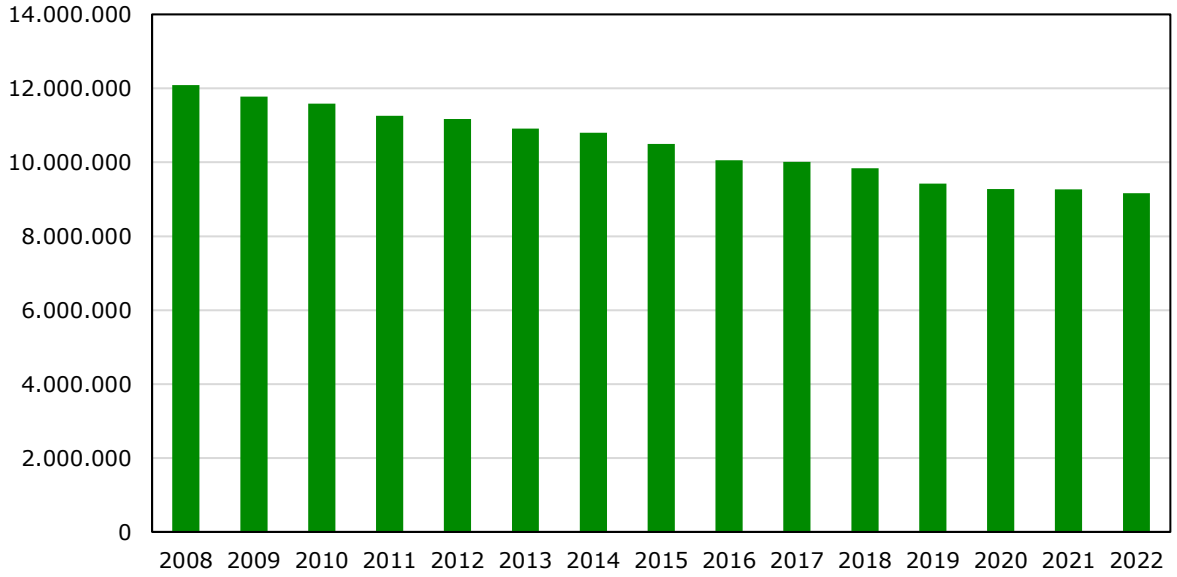

Figure 4-4 *Number of employees in the EU27 agricultural sector, in 2008-2022*
*Source: Eurostat NACE A*64. Nama_10_a64_e.*

Despite the declining number of farms and employment in the EU27, the gross value added contribution to the GDP by the agriculture sector increased by 43% between 2008 and 2022. This is a result of the consolidation of farms that are increasing in size and being more productive, leading to increased agricultural output, and uptake by the food and drink industry. The dip in 2009 was due to the economic recession, but since 2010, the trend in the value added has been upwards (Figure 4-5).

In 2022, the food and drink industry generated a value added that is 19% higher than that of the agricultural sector. This was because the value addition of the industry is reliant on the output from the agricultural sector, adding significant value through manufacturing, packaging, and branding.

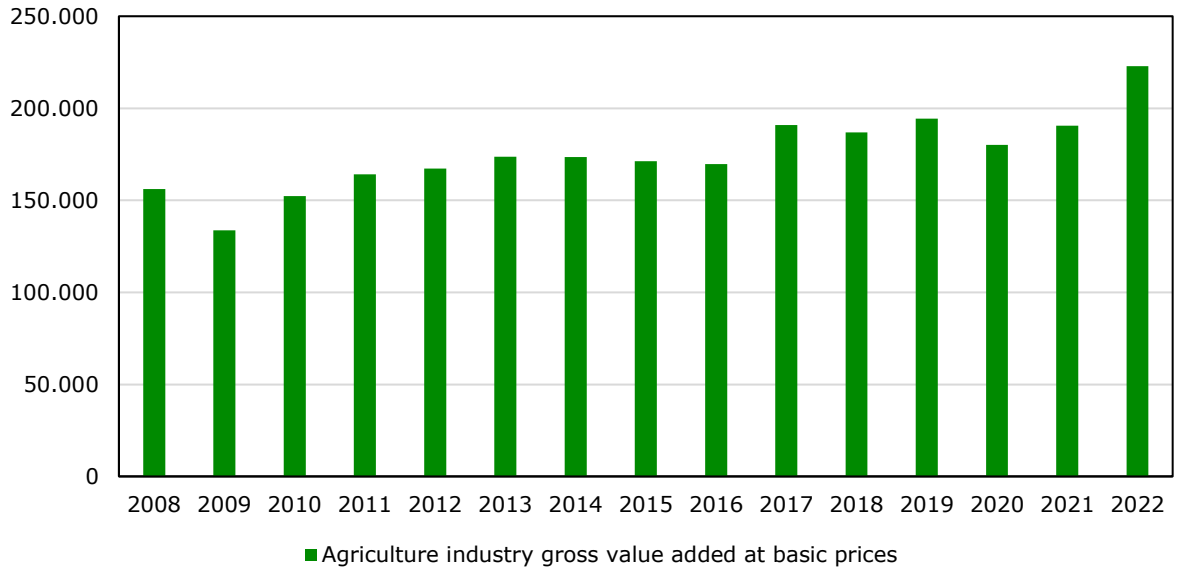

Figure 4-5 *Value added of the EU27 agricultural sector, at basic prices, in € million, in 2008-2022*
Source: Eurostat aact_eaa01.

Finally, it is worth noting that the current on-going agricultural crisis across Europe has been fuelled by several shocks such as the COVID-19 pandemic in 2020, the Ukraine war in 2022, climate change shocks, the 2022 inflation rate, and the rising cost of agricultural production. The Ukraine war exacerbated the global food supply chain disruption created by the COVID-19 pandemic in 2020, while climate effects such as floods, droughts and land degradation across European countries undermine food production. This crisis is further compounded by farmers' discontent with the unstable regional and national agriculture policy changes, new agricultural targets, and stricter EU regulations. The crisis in the agricultural sector affects the food and drink industry due to their inter-reliance. To ensure sustainable supply of agricultural products and raw materials, it will be important to strengthen collaboration along the chain.

4.4 Retail has the highest value added contribution in the agri-food chain

The retail sector encompasses retail sales via stalls and markets, in specialised stores, in non-specialised stores, wholesale and agents involved in the sales of food and drink. The number of enterprises in the food and drink retail sector decreased by 7% between 2011 and 2022 (Figure 4-6). While this was less drastic than in the agricultural sector, the food and drink industry showed an adverse trend, with an increasing number of enterprises. The declining trend of the highly competitive food and drink retail sector is associated with the rise of online shopping and an increased market share of larger players and discounters. Between 2010 and 2023, the share of e-shoppers in Europe increased from 53% to 75%, and to capture this changing trend, food and drink retailers had to adapt to the digital landscape. The decline was further exacerbated in 2020 when COVID-19 restrictions led to the closure of retailers that could no longer sustain the impact of the pandemic. Furthermore, the more recent economic pressures such as inflation played an important role in the closure of small and medium retailers that account for 99% of the food and drink retailers. In all, although the food and drink retail and manufacturing industries share similar structure in terms of the percentage of SMEs, they show diverging growth trends.

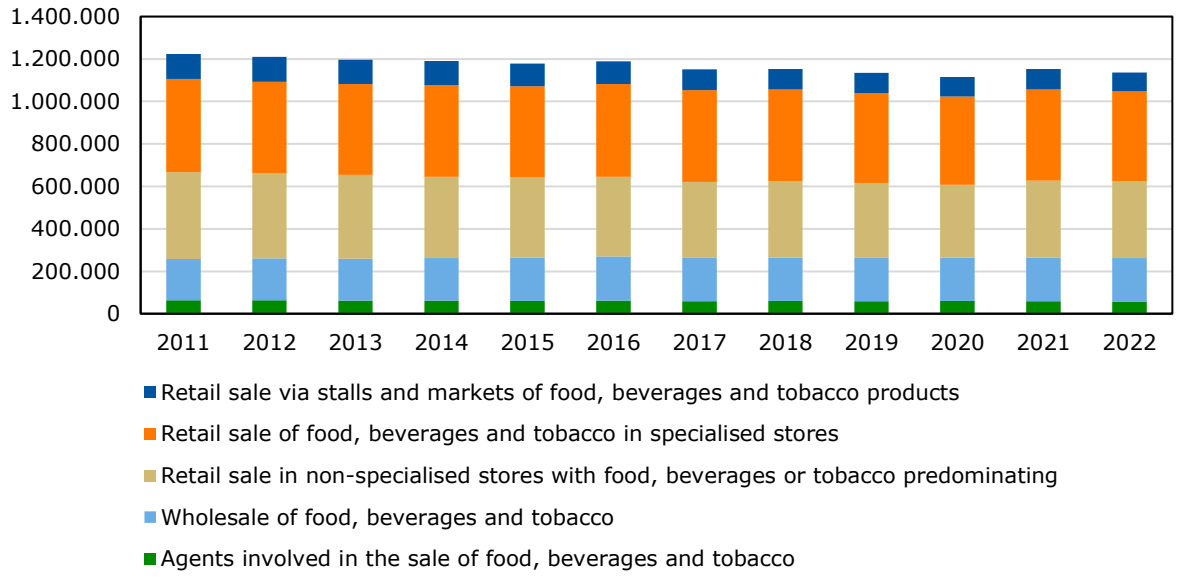

Figure 4-6 *Number of enterprises in the EU27 food and drink wholesale and retail industry, in 2011-2022*
Source: Eurostat sbs_na_dt_r2.

The retail sector has the second largest number of employees in the agri-food chain, with 8.5 million persons in 2022 (Figure 4-7), after the agricultural sector (see Figure 4.1). Despite the decreasing number of enterprises, the number of food and drink retail sector employees increased by 8% between 2011 to 2022 due to the large scale of distribution and supply chain operations of the food and drink retail sector. Comparatively, the food and drink industry and retail sector share similar employment growth trends, but the retail sector has 81% more employees (this includes non-specialised stores with food and drink)

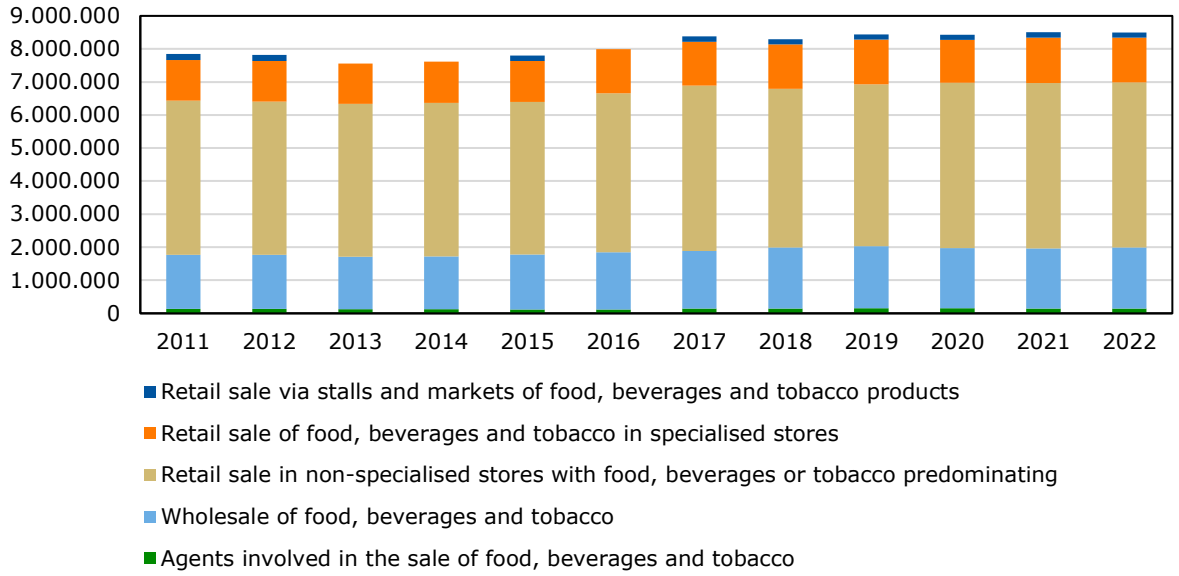

Figure 4-7 *Number of persons employed in the EU27 food and drink wholesale and retail industry, in 2011-2022*
Source: Eurostat sbs_ovw_act.

In 2022, the food and drink retail (this includes non-specialised stores with food and drinks) contributed to the highest value added in the agri-food chain, with €326 billion, a 54% increase from 2011 to 2022 (Figure 4-8). The growth of value added is driven by the growth of private label introduction, investments in retail media, and e-commerce acceleration.

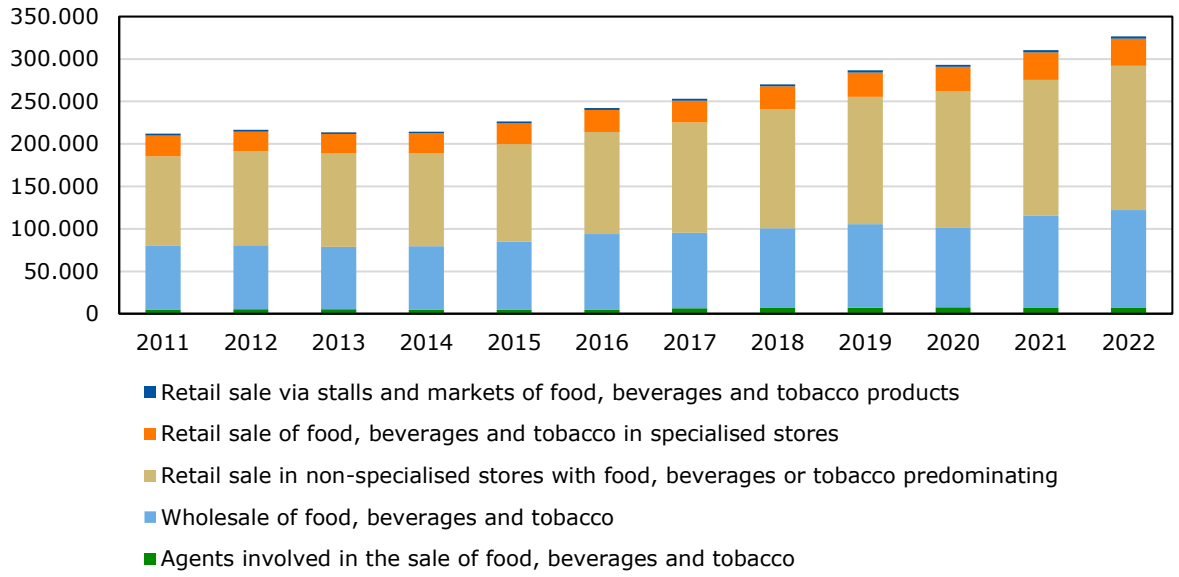

Figure 4-8 *Value added of the EU27 food and drink wholesale and retail industry, in € million, in 2008-2022*
Source: Eurostat NACE sbs_na_dt_r2.

In 2022, the turnover and operating surplus of the food and drink retail sector were €2.5 trillion and €123 billion respectively. Between 2011 and 2021, the profit margin of the food and drink retail sector increased (Figure 4-9). The margin declines in 2022, sharing similar trends as the food and drink industry between 2021 and 2022. The decline was due to pressure on costs following the rise in inflation.

In 2022, the profit margins of the food and drink retail (5%) were lower than that of the food and drink industry (8%). The higher margins of the manufacturing industry can be attributed to several factors such as its business model, which includes access to the extra-EU export markets, the considerably higher margins of the drink industry compared to the food industry, and products pricing based on value-addition, quality, branding, and innovation.

In terms of costs, the main operating costs of the retail sector are labour, store operations, logistics, and administrative costs. The food and drink industry incurs similar costs, added to the costs of manufacturing and processing costs, and higher costs of raw materials, and high capital investment (machineries, R&D). The food and drink industry has low control over input costs such as commodity prices, and the industry absorbs risks such as commodity price volatility.

In addition, a growing business model in the food and drink retail sector is the discount or value based model. Discounters offer lower priced products with low margins. Discounters such as Aldi and Schwarz Group (Lidl) are gaining significant market share and, in Germany, have a combined 30% market share. Furthermore, between 2020 and 2022, the German revenue share of discount stores grew from 35% to 37%, and in Italy, the market share increased from 19% to 23% between 2019 and 2023.[23]

Nonetheless, retailers have a higher return on capital employed despite lower margins. A preliminary assessment using Orbis data shows that the return on capital employed (ROCE) for EU27 food and drink companies was, on average, about 14% in 2023 versus 16% for retailers.[24] This means that the food and drink enterprises generated €0.14 respectively, in operating profit for every €1 of capital employed, which is lower than the retail industry (€0.16 generated for every €1 capital employed, showcasing higher efficiency on capital employed). There are several factors that could lead to the higher ROCE of the retailers including the business model of retailers that operate with lower fixed capital investments (e.g., stores vs. factories),

[23] Savills, 2024. European Grocery Market Insight. https://en.savills.nl/research_articles/251487/364620-0
[24] Data obtained from Orbis database of Moody's. In total 6847 drinks companies from the EU27, 34192 food companies, and 32528 retail companies were included in the analysis. Companies were selected on the basis of primary NACE code, and only included if accounts and financials were available for turnover, profit before tax, assets, and ROCE. Results were weighted with the turnover of 2023.

higher pricing power or better cost control, and retailers often operate with negative working capital (i.e., getting paid by customers before paying suppliers), boosting ROCE. Note that profitability differs substantially between companies and large differences can be found in all industries and across countries.

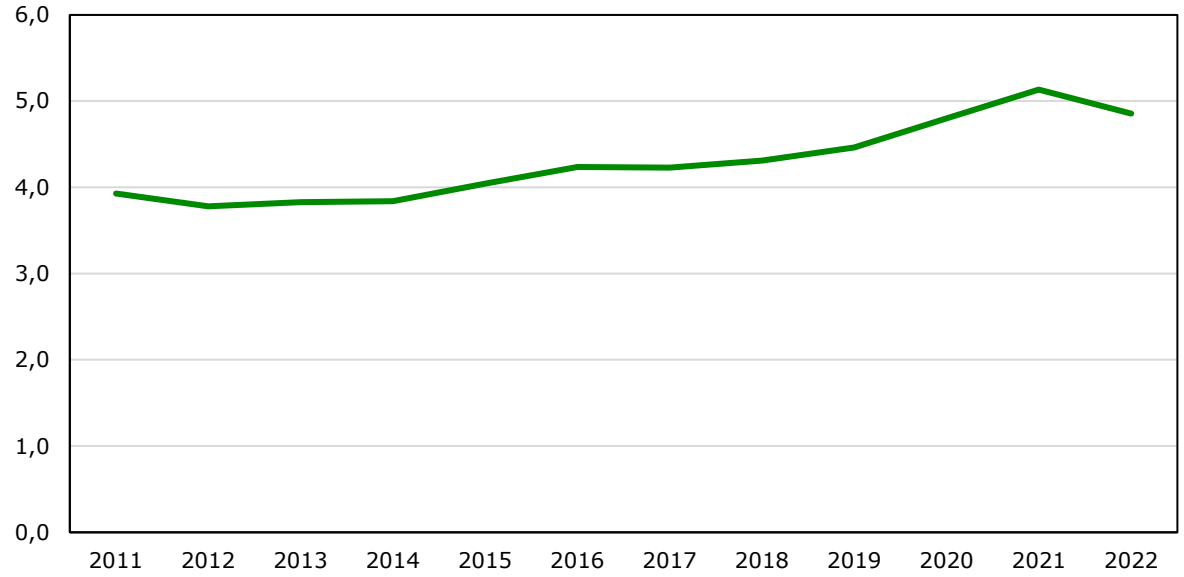

Figure 4-9 *Profit margin of the EU27 food and drink retail industry, gross operating surplus, in % of turnover, in 2011-2022*
Source: Eurostat sbs_ovw_act.

4.5 Increasing retail concentration and private labels

In the EU27 grocery retail market, three major trends impact food and drink companies: a continuing process of concentration; the rise of private labels; and the increasing market share of discount supermarkets. All these trends increase the position of the retail industry along the agri-food chain.

Figure 4-10 depicts the concentration ratios of grocery retail (C4, as the combined market share of the largest four retailers) in the EU27 in 2016 and 2023. In many countries, the concentration ratio has increased. Furthermore, in 2023, the C4-concentration ratio exceeded 60% in all EU27 countries except Italy, where it was just under 59% but growing rapidly. In a few countries, most notably in Belgium, a decrease in retailer concentration was noted, largely due to increasing sales of discount formulas and new supermarkets – mostly from neighbouring countries – entering the market.

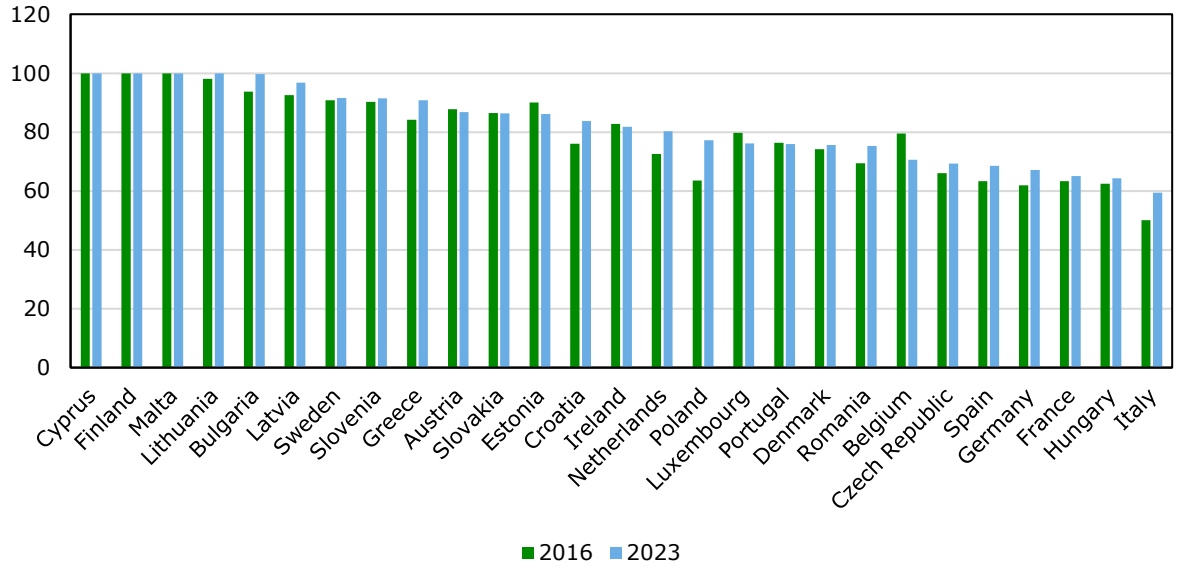

Figure 4-10 *Grocery retail concentration ratios at formula level in % market share of largest 4 retailers (C4-concentration ratio), per EU country, in 2016 and 2023*
Source: IGD.

As a consequence of recent high inflation, EU consumers have become more price sensitive, buying less food or shifting to cheaper options. So to strengthen their position and differentiate themselves from competitors, retailers increased introduction of price competitive private label products.[25] These are goods produced by contracted manufacturers or affiliated retail-owned companies, and sold under the retailers' own brands. Private labels have gained popularity for their competitive pricing and perceived quality, offering consumers an alternative to branded products and downtrading options. In the past 15 years, the share of private labels in new product introductions has increased, from 25% in 2011 to 30% in 2024 (Figure 4-11). The market share of private labels is also increasing. According to PLMA, private labels now account for 39% of the market in Europe with faster growing sales than those of branded products in 2024.[26] The top 3 countries with the largest private label introductions are the Netherlands (44%), Belgium (39%) and Ireland (37%) (Appendix A-2.2). This growth of private labels reflects the level of consumer price sensitivity to food and drink products, as private labels are often cheaper than branded products.

[25] Eit food, 2022. Changes in food behaviour in times of crisis. https://www.eitfood.eu/files/Report-changes-in-food-behaviour-in-times-of-crisis.pdf
[26] https://www.plmainternational.com/article/european-private-label-sales-rose-355-billion-eu-last-year

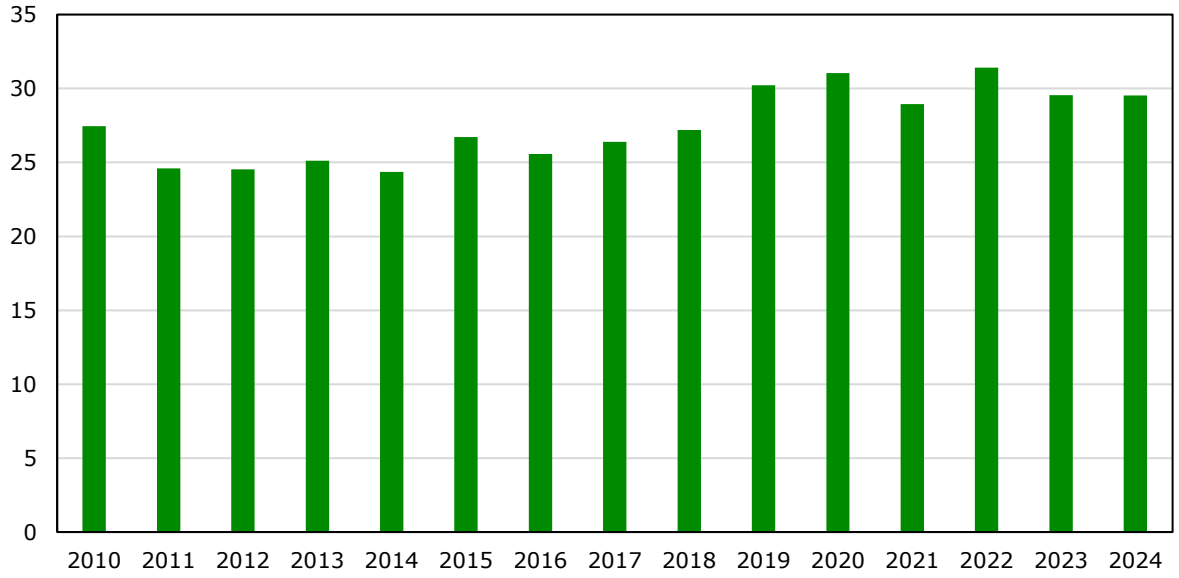

Figure 4-11 *Percentage of private label in total introductions in the EU27 food grocery market, in 2010-2023*
Source: Innova database, 2024.

The third general trend is the rise of discounting. Figure 4-12 presents the sales of EU27 grocery retailers per type of retailer. The share of discount supermarkets increased from 30% in 2016 to 36% in 2024, according to IGD data.[27] Discount supermarkets have especially high market shares in Malta (85% in 2023), Poland (66%), Cyprus (58%), Denmark (55%), Spain (52%), Germany (48%), and Belgium (47%). Discount supermarkets usually provide many private label products, connecting this trend with the rise of private labels.

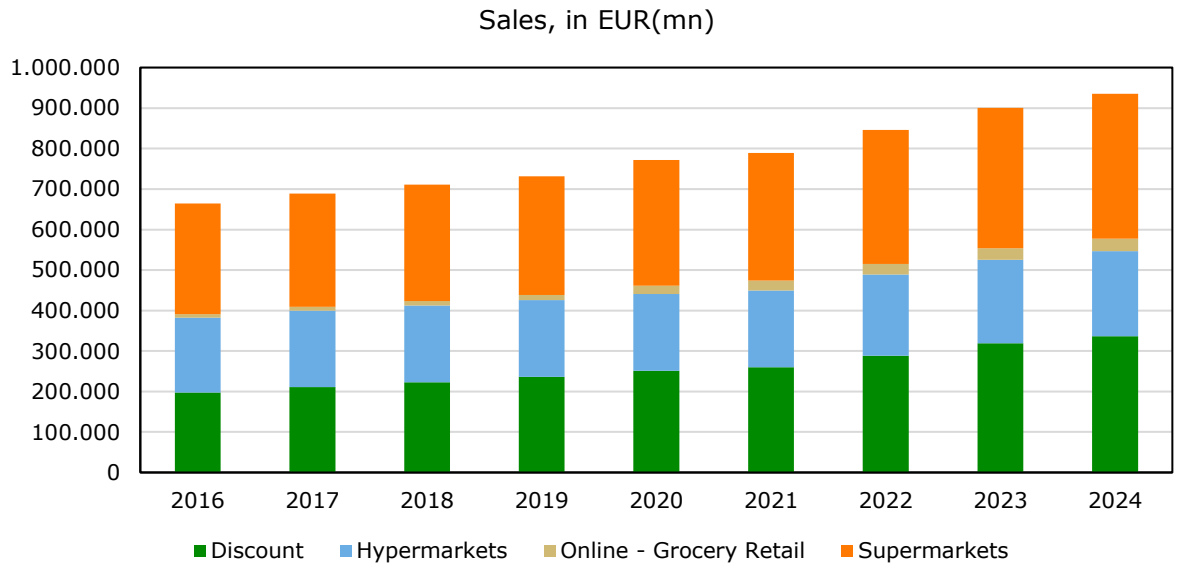

Figure 4-12 *Sales of EU27 grocery retailers, in € million, and market share of discounters, in %, in 2016-2024*
Source: IGD.

Retail buying power has grown due to the consolidation of the retail sector, and the increasing share of private labels. Major supermarket chains dominate the market, leveraging their size, extensive supply chains, and buying power. Furthermore, retailers have access to information on cost prices of food products from their private-label suppliers. This consolidation and access to information gives retailers a significant

[27] https://www.igd.com/

influence over pricing, product selection, and supplier contracts, often putting pressure on food and drink manufacturers to meet strict cost and quality requirements. The market trends show that food prices in Germany are declining faster than in other European countries which, according to Geijer (2023), is because German food retailers have negotiated more strongly with their suppliers than their counterparts in other European countries, even at the risk of losing these suppliers.[28]

[28] Geijer, T. 2023. ING. Food inflation finally cools in Europe after a long hot summer. https://think.ing.com/articles/food-inflation-is-cooling-down-after-a-hot-summer/#a2

5 The EU shows strong competitiveness but the US and China are growing faster

This chapter presents the results of an analysis of the competitiveness of the EU27 food and drink industry compared with four important players on the world food and drink market: Canada, China, the UK, and the US (selection criteria in chapter 1.4). Competitiveness is about productivity and its ability to maintain and grow future business. Competitiveness is also about the ability to create value added and market opportunities. Factors that determine competitiveness include conditions such as the availability of resources and labour, demand conditions, structural factors like firm dynamics, innovation and entrepreneurship, the developments in related and supporting industries, and government policies.[29]

5.1 The EU food and drink industry; leading in business and employment activity

The EU27 has the largest number of food and drink enterprises and employees compared to Canada, China, the UK and the US due to the economic size of the EU member states and its population (Table 5-1). In the EU27, the number of industry employees grew by a third between 2012-2022, more than in the UK (29%) and the US (10%). In the same period, the EU27 experienced a moderate growth in the number of food and drink entreprises (3%) compared to e.g. the UK (60%) and the US (64%).

The EU27 food and drink industry had €1.44 trillion turnover in 2022, higher than the US (€1.09 trillion). Even though the EU food and drink industry turnover grew by 52% in the period 2012-2022, it is a lower growth rate than the US (56%).

Canada and the UK have the smallest food and drink industries in terms of turnover, employees, and number of enterprises due their population size, but the food and drink industry remains their largest manufacturing industry. For instance, in the UK, the industry accounts for 20% of total manufacturing.

Table 5-1 *Structure of the food and drink industry for the EU27 and 4 competing countries, in 2012 and 2022*

	Number of enterprises			Persons employed, mln			Turnover, bln euro		
	2012	2022	Growth % '12-'22	2012	2022	Growth % '12-'22	2012	2022	Growth % '12-'22
EU27	281,651	291,000	3%	3.50	4.65	33%	950.0	1,440.8	52%
Canada	8,318	8,500	2%	0.26	0.30	15%	77.8	118.4	52%
China	12,617	15,254	21%	3.05	2.73	-11%	362.6	494.8	37%
UK	7,809	12,460	60%	0.35	0.45	29%	114.4	153.1	34%
US	25,974	42,708	64%	1.55	1.70	10%	652.0	1,019.0	56%

Source: Eurostat sbs, 2024; Canada.ca Overview of the food and beverage processing industry - agriculture.canada.ca; Statistics Canada. Table 14-10-0202-01 Employment by industry, annual; Bureau of labour statistics (2022) & United States Census Bureau; NBS China-China Statistical yearbook (2022; China Statistical Yearbook 2023); Statistics Canada; Food and Drink Federation (FDF) 2022; *Prepared by USDA, Economic Research Service, using data from U.S. Department of Commerce, Bureau of the Census, 2021 (USDA ERS - Food and Beverage Manufacturing) Annual Survey of Manufactures. Data as of December 2022., Wageningen 2012, Competitiveness of the EU food industry report.

[29] Adapted from Porter (1980).

5.2 High gross value added growth; lower labour productivity and investment in innovation

With €250 billion in 2021, the EU food and drink industry is the largest in terms of gross value added compared to the US (€213 billion), Canada (€52 billion), and the UK (€38 billion) (Table 5-2). For China, the data on gross value added are unknown.

Between 2010 and 2021, the EU27 food and drink industry gross value added grew by 50%, a rate considerably higher than the growth in Canada and the UK. In the US, the gross value added growth rate was even stronger, at 71%. This difference can be attributed to several factors including the difference in labour productivity and technology.

Compared to Canada, the UK and the US, the EU food and drink industry has the lowest labour productivity. Table 4-2 illustrates this striking difference, showing that labour productivity in 2021 in the US is 2.4 times higher (€130,000) than that of the EU (€54,000). Several challenges affect the EU27 labour productivity, including the low level of innovation and automation, and SMEs dependence on lower skilled labour because they cannot afford highly skilled labour.

Manufacturing processes in food and drink industries are often capital-intensive, and larger companies are able to capture value through improved processes and economies of scale. On the other hand, SMEs have the ability to adapt quickly to market changes, however, they face the challenges of a lack of finance, shortage of required skilled labour and limited economies of scale to reduce production costs and increase value added. In addition, expert interviews reveal that the fragmented markets in the EU, characterised by varying consumer preferences, labelling laws, and language barriers, make it difficult for companies to capture value added, especially for SMEs. In the US and China, markets and policies are more homogenous than those of the EU, where the member countries have their national regulations and policies that companies must adhere to. This means that if companies are active in countries other than their home country, they must comply with several different regulations, for example around packaging and labelling which increases costs for companies.

Table 5-2 *Gross value added and apparent labour productivity, in 2010 and 2021*

	2010			2021			Growth 2010-2021, in %	
	Gross value added, € mln	No. Persons employed, 1,000	Labour productivity, €1,000/person/year	Gross value added, € mln	No. Persons employed, 1,000	Labour productivity, € 1,000/person/year	Gross value added, %	Labour productivity, %
EU27	167,188	4,177	40	250,284	4,659	54	50	35
Canada	41,122	216	190	52,809	300	176	28	-7
China	:	3,059	:	:	2,903	:	:	:
UK	28,778	376	76	38,000	456	83	32	9
US	124,550	1,451	86	213,470	1,638	130	71	51

Source: Growth rate calculations by Wageningen University Research (2024) based on Eurostat sbs, 2024; Canada.ca (https://agriculture.canada.ca/en/sector/food-processing-industry/overview-food-drink); Bureau of labour statistics (2022) & United States Census Bureau; NBS China-China Statistical yearbook (2022; https://www.stats.gov.cn/sj/ndsj/2023/indexeh.htm); OECD for 2018 and 2019 data, 2024 data available; Calculations by WUR based on OECD data. Note: ''':'' means unknown.

The EU food and drink industry spent 0.3% of turnover on R&D activities in 2021 (Table 5-3). This is more than the same industries in Canada and the UK invest, but over five times less than in China and less than a half of the US's R&D expenditures. While between 2010 and 2021 the EU food and drink industry increased annual R&D expenditures by 0.1 percentage points of its turnover, it still lags far behind the share of turnover that the industry in China and the US spend on innovation. Additional and consistent investments in innovation in the EU food and drink industry could result in increasing added value by keeping up with global

consumer markets trends and product demands, optimising processes, reducing environmental impact, while building societal trust, and staying ahead of changing food safety and nutritional regulations.

Table 5-3 *R&D expenditures in the food and drink industry as % of turnover, in 2010-2021*

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Canada	:	:	0,2%	0,0%	0,1%	0,1%	0,2%	0,0%	0,1%	0,2%	0,2%	0,1%
China	0,9%	0,9%	1,1%	1,1%	1,2%	1,2%	1,2%	1,4%	1,6%	1,6%	1,6%	1,6%
EU27	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,3%
UK	:	:	:	:	:	0,1%	0,1%	0,0%	0,1%	0,1%	0,1%	0,1%
US	:	:	:	0,7%	0,7%	0,7%	:	0,6%	0,6%	0,6%	0,7%	0,7%

Source: Eurostat, US Census Bureau, China statistical yearbook, Statistics Canada, Office of National Statistics, imputations Wageningen University Research. Note: ":" means not available.

The larger focus on investment in innovation in the food and drink industries of China and the US is also visible in the development of the total intramural R&D expenditures in food, drink (Figure 5-1).[30] Between 2010 and 2022, the EU27 investment in the food and drink industry increased by 62%, from €1.9 billion to €3.1 billion.[31] In comparison, the US's food and drink industry spent about €6.3 billion on R&D in 2021, over one third more than in the previous eight years. Moreover, Chinese food and drink companies spent €8.5 billion in 2022 on R&D, four times more than in 2010.[32] As such, China had the largest investment growth in food and drink R&D expenditures.

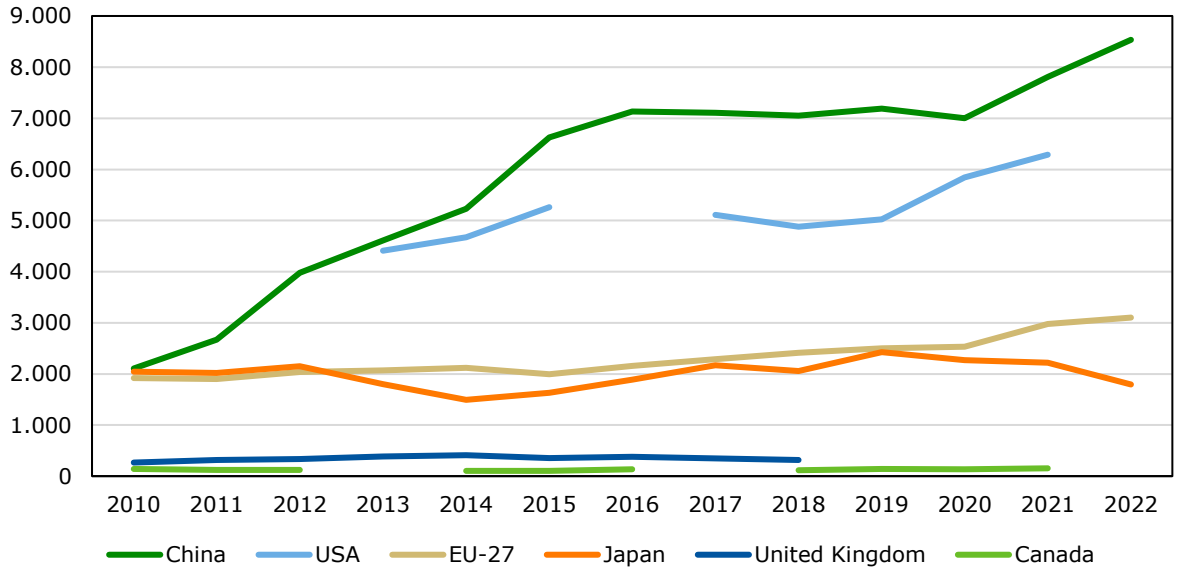

Figure 5-1 *Intramural R&D expenditures of food, drink and tobacco industry, in € million, in 2010-2022*
Source: Eurostat, OECD, Statistics Netherlands, imputation Wageningen Social & Economic Research

The lower labour productivity in the food and drink industry in the EU27 compared to the US can also be attributed to lower innovations and automation in the EU. For instance, global robotic installations in the food and drink industry increased by 18% year-on-year, led by the US. Food manufacturers in the US employed an average of 89 robots per 10,000 employees in 2020, compared to 75 in the EU27, 44 in the UK, and 13 in

[30] Intramural expenditures is all the expenditure on R & D within a statistical unit or economic sector, whatever the source of funds. Also included is money spent outside the unit or sector but in support of intramural R & D (for example, purchase of supplies for R & D). Both current and capital expenditures are included. Eurostat Glossary. This also includes tobacco.

[31] Eurostat and OECD, estimations based on the latest available data.

[32] **Note:** The total R&D expenditures in the food, drink industry for the EU-27 are estimated on the basis of latest available data from Eurostat and OECD, supplemented with national statistics, but need to be regarded with some caution as some data points are taken from earlier or later years.

China.[33] While the EU had the second highest average number of robots per 10,000 employees, only one in ten food producers in the EU currently makes use of robots (Geijer and Zhang, 2021).

Innovation investments help to find solutions for sustainable and healthy diets, like plant based protein food. The EU SME Centre reports that, currently, China is the second largest 'healthy food' market after the US, with 18% of global sales.[34] According to the EU SME Centre, despite the significant opportunity of healthy diets in China, brands from the US, Canada, Japan, Australia, New Zealand and Switzerland outperform European brands.[35] The competitive field for healthy diets is further increased by the growing focus of the Chinese government on domestic research and the manufacture of healthy and plant-based diets. According to a scoping study by the Meridian Institute, in the Chinese Ministry of Agriculture and Rural Affairs' (MARA) Five-Year Agricultural Plan the government plans to increase research and investment in the new protein market including the culture and manufacturing technologies for nutritious foods such as cultivated meat, synthetic eggs, dairy, fats, and functional recombinant protein.[36]

5.3 Higher pressure on food and drink industry profits in the EU compared to the US

In terms of the total food and drink industry profits, between 2009-2019 the US has been catching up with the EU27. This analysis focuses on the pre-COVID-19 pandemic years 2008 to 2019, as due to the pandemic in 2020, profits of the food and drink industries in the EU27 and most leading countries declined. The gross operating profit of the EU food and drink industry was about €88 billion in 2019 compared to nearly €82 billion in the US in the same year (Table 5-4). Canada and the UK had a much lower gross operating profit due to the size of their industries; numbers for China are unknown. The growth of the gross operating profit in the EU (41%) was less rapid than that of the US (84%) between 2009-2019, but was higher than growth in Canada and the UK. The lower EU gross operating profit growth rate between 2009 and 2019 compared to the US can be attributed to a host of factors, including lower economic growth and consumer confidence after the 2008 financial crisis, intensifying competition due to growth of discounters and private label (see chapter 4.5) and margin squeeze in the EU food and drink value chain, changing consumer preferences, coping with health and sustainability trends, online shopping shifts, cost of traceability, more stringent regulations, and more complex cross-border trade within the EU and the anticipation of Brexit.

[33] Geijer, T., and Zhang C., 2021. ING. Robots extend reach in the food industry. https://think.ing.com/articles/robots-extend-reach-in-the-food-industry/#:~:text=Our%20analysis%20shows%20that%20food,%2C%20Denmark%2C%20Sweden%20and%20Italy.

[34] EU SME Centre. 2023. Guidelines on Exporting Health Food to China. https://www.eusmecentre.org.cn/publications/guidelines-on-exporting-health-food-to-china/

[35] EU SME Centre. 2023. Guidelines on Exporting Health Food to China. https://www.eusmecentre.org.cn/publications/guidelines-on-exporting-health-food-to-china/

[36] Meridian Institute and the Food and Land use coalition (2023). Accelerating and shift to healthy and Sustainable Diets in China. Scoping Study 2023. https://www.foodandlandusecoalition.org/wp-content/uploads/2023/04/JC0436-Meridian-China_Diets_Report-v8.pdf

Table 5-4 *Gross operating profit of EU27, selected EU countries and major competitors, in € million, in 2008-2020*

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth % (2008-2019)
EU27	63,000	67,874	73,044	73,111	70,931	73,463	76,402	77,732	81,340	84,995	72,230	88,538	83,228	41%
Belgium	2,743	3,015	2,935	2,788	2,859	3,018	3,361	3,425	3,786	3,627	4,301	4,391	4,434	60%
France	10,035	10,252	10,817	11,050	11,495	11,175	12,018	12,117	12,109	15,451	:	13,294	13,131	32%
Germany	10,572	10,863	11,150	10,550	10,154	11,100	11,340	12,324	13,973	14,010	15,510	16,579	16,015	57%
Italy	:	8,429	10,515	10,528	9,803	9,748	10,176	11,050	11,797	11,747	12,207	12,267	11,750	46%
Netherlands	:	4,184	4,898	4,765	4,810	5,295	5,062	5,190	5,962	5,846	5,490	5,807	5,956	39%
Spain	9,376	8,613	9,007	9,582	8,455	8,397	9,215	8,469	8,611	8,863	9,568	9,999	9,358	7%
Canada	8,266	8,052	9,335	8,793	9,500	8,749	8,264	8,914	9,452	9,952	8,915	9,477	:	15%
UK	10,523	10,344	10,316	10,227	10,632	10,963	12,078	14,203	11,379	11,283	11,709	12,003	:	14%
US	44,492	63,906	56,865	48,298	55,884	57,449	61,379	84,761	83,160	76,601	70,781	81,705	:	84%

Source: Eurostat sbs_na_sca_r2, OECD 2024.

Large differences can be noted between the food and drink industry gross operating margins of the UK, the US and a number of selected EU27 Member States: Belgium, France, Germany, Italy, the Netherlands and Spain (Figure 5-2). Based on national accounts, in Germany, the food and drink industry experienced the highest competitive pressure with the lowest gross operating margin of about 6% while China and France showed the highest gross operating margin growth of around 12% in 2019**.** In 2009, the Canadian food and drink industry recorded the highest operating margin, but this decreased by 3 percentage points between 2010 – 2019, while that of France increased by 1 percentage point. The UK, Spain and the US had a stable gross margin of around 11% in the same period.

According to the Food and Drink Trends report (Atradius, 2022), the margin of the German food and drink industry is structurally lower, especially that of the food segment. The report highlights that the German drink segment has experienced declining sales of alcoholic drinks for years, leading to a 1.6% decrease of drink output in 2021. Another reason is that Germany also has the highest percentage of discounters (chapter 4.5). Expert interviews and the Atradius report (2022) reveal that manufacturers are unable to pass down high costs to retailers and consumers due to the market power of large retailers and concentration of retailers in buying alliances. The common challenge across EU27 Member States is the high concentration in retail (chapter 4.5) which makes it difficult to pass on higher costs and therefore puts pressure on industry margins. On the other hand, the food and drink industry in Canada and the US seems able to pass down high costs to retailers and end-consumers (Atradius, 2022), resulting in relatively stable profit margins for the manufacturers. This could be as result of higher market power and industry consolidation, and the limited bargaining power in the respective countries. For instance, in Canada, the grocery sector is concentrated among a few major players (Loblaws, Sobeys, Metro, Walmart). While they have some bargaining power, they still rely on dominant manufacturers, and competition law in Canada does not regulate imbalances in bargaining power (Competition Bureau Canada, 2023).

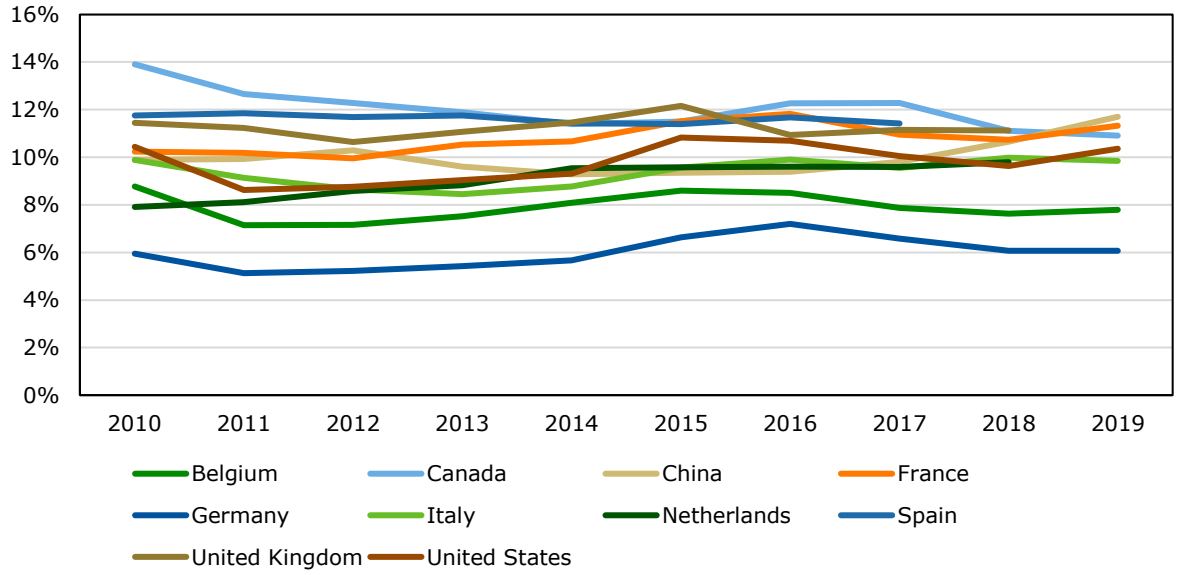

Figure 5-2 *Gross operating margin, in %, in 2010-2019*
Source: OECD, China Statistical yearbook.

Recent economic and political developments put pressure on the EU food and drink industry profit margins, for example the higher prices of energy and packaging. Energy prices in the EU were almost twice, or even three times those of the US and China in 2023.[37] In the EU, even though the energy prices have declined, they remain above pre-pandemic levels.

In the EU, packaging prices are generally higher than those in the US and China due to production location, costs and EU environmental policies for sustainable packaging. The US regulatory landscape for the sustainable packaging is diverse across states and, companies adhere to respective state regulations due to the lack of federal legislation.[38] In the EU, the varying national labelling policies add to the costs and complexity of packaging. For specific packaging such as plastic and paper, the US and China are leading producers and have competitive prices.[39] The EU is a key producer for metal and glass packaging, but prices are less competitive than in the US partly due to environmental regulations and taxes (i.e higher recycling requirements and carbon taxes), compounded by the fragmented regulations across EU countries, energy prices, raw materials availability, and transport costs.

Commodity and associated food price inflation in the years after the pandemic are a global challenge for the food and drink industry. According to a European parliament report (2023), supply shocks in international markets have had a similar effect on inflation in both EU and the US.[40] So, unlike energy and packaging prices, commodity price increases did not have a divergent impact on growth rates or profit margins of the food and drink industry in these countries.

[37] IEA, 2024. Electricity 2024 Executive Summary. https://www.iea.org/reports/electricity-2024/executive-summary
[38] ING. 2024. The sustainable food packaging choices that don't come ready-wrapped. https://www.ing.com/Newsroom/News/The-sustainable-food-packaging-choices-that-dont-come-ready-wrapped.htm
[39] Verper knowledge. 2024. Packaging prices comparisons. https://vespertool.com/knowledge-hub/packaging/types-of-data/price-comparisons/
[40] European parliament. November 2023. Are inflation dynamics different in the euro and the united states? https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/755706/IPOL_IDA(2023)755706_EN.pdf

5.4 The EU27 remains a strong net exporter of food and drinks; China increases trade and global market share

Between 2008 and 2023, the EU27 was the largest exporter of food and drink products compared to Canada, China, the UK, and the US, however China's exports are currently growing rapidly and gaining market share. The EU27 export value of food and drink products (€187 billion) is 84% higher than the value of the second exporter, the US (€102 billion) and about three times as high as the food and drinks export value of China.[41] From 2008 to 2019 (pre-COVID-19), China had the largest annual export growth rate at 83%. This was larger than that of the EU27 (37%), the US (54%), and Canada (54%) with only the UK having a lowest rate (22%). Furthermore, pre-COVID-19, the export market share of the EU27 and the UK decreased by 2 and 1 percentage points, respectively. The market share of Canada and the US remained stable, while China gained market share by 1 percentage point. Post-COVID-19, US and Canada increased by 1 percentage point each and the other three remained the same (Table 5-5).

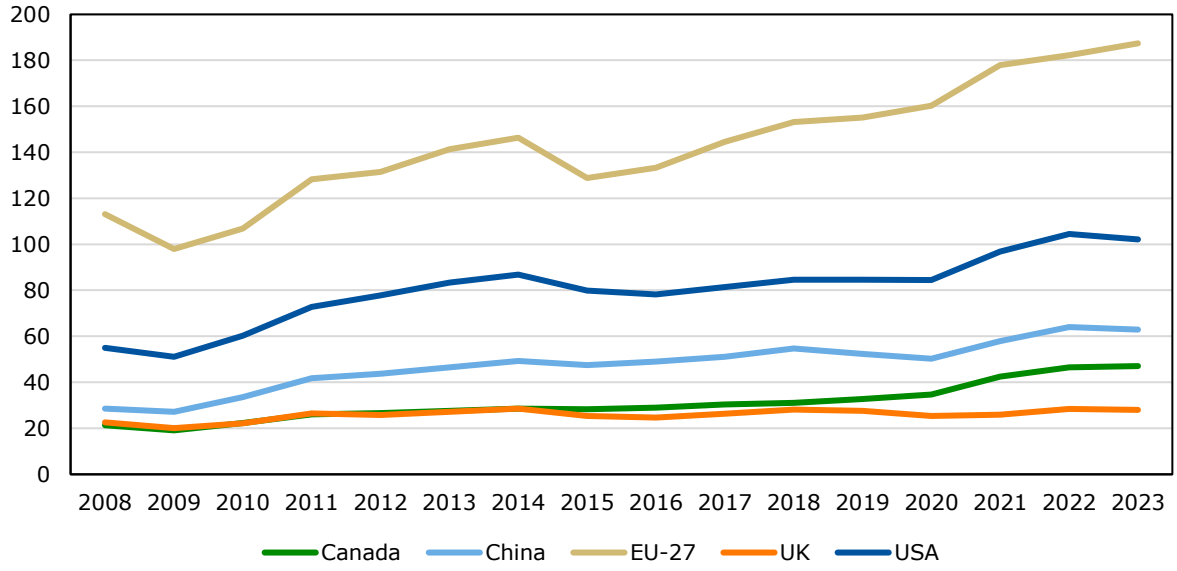

Figure 5-3 *Export of food and drink products of all 5 countries and region, in € billion, in 2008-2023*
Source: UN Comtrade.

Table 5-5 *Export of the food and drink products and growth rate, in € million, in 2008, 2019 and 2023*

	2008		2019			2023		
	Export value (€m)	**Market share (%)**	**Export value (€m)**	**Market share (%)**	**Growth (%) Pre-COVID-19 2008-2019**	**Export value (€m)**	**Market share (%)**	**Growth (%) Post-COVID-19 2020-2023**
Canada	21,288	4%	32,700	4%	**54%**	47,066	5%	**36%**
China	28,564	5%	52,253	6%	**83%**	62,898	6%	**25%**
EU27	113,142	21%	155,054	19%	**37%**	187,353	19%	**17%**
UK	22,522	4%	27,530	3%	**22%**	28,016	3%	**11%**
US	55,014	10%	84,651	10%	**54%**	102,099	11%	**21%**

Source: Calculations by Wageningen UR based on data from UN Comtrade data, 2023. Exchange rate applied is the annual average.

The US is the fastest growing import market compared to Canada, China, the EU27 and the UK. However, China is becoming an increasingly attractive market for food and drink products. In 2023, the US food and

[41] UN Comtrade data, 2024

drink imports were worth €166 billion, while those in the EU27 were €127 billion and in China €107 billion (Figure 5-4 and Table 5-6).

China's import growth rate grew by 254% between 2008 and 2019 due to the higher income of its growing middle class. This growth was considerably higher than the export growth during this period. However, China has the lowest post-COVID-19 import growth rate. Conversely, the pre-COVID-19 import growth rate in the EU27 and UK were the lowest, with a 4% and 1% increase respectively, resulting in an increased trade surplus of the EU. The US had the second largest import growth rate with 62% between 2008 and 2019, higher than its export growth rate. The import market share of China and the US increased between 2008 and 2023. The import market share of the EU27 decreased pre-COVID-19 and remained stable post-COVID-19, while the UK and Canada decreased pre-COVID-19 and increased post-COVID-19.

According to Innova Market Insights (2024), some key trends of the food and drink industry of China can be ascribed to an increasing consumer demand for healthy products, interest in premium and indulgent alcoholic drinks and food products, increased intake of fish, meat, and poultry, and increased consumption of plant-based food.[42] Domestic production cannot meet this demand because in the Chinese food and drink industry, the fruit & drink sub-sector only accounts for 0.61% of total production share.[43] Thus, the Chinese market presents opportunities for EU food and drink product manufacturers to expand their sales in that market.

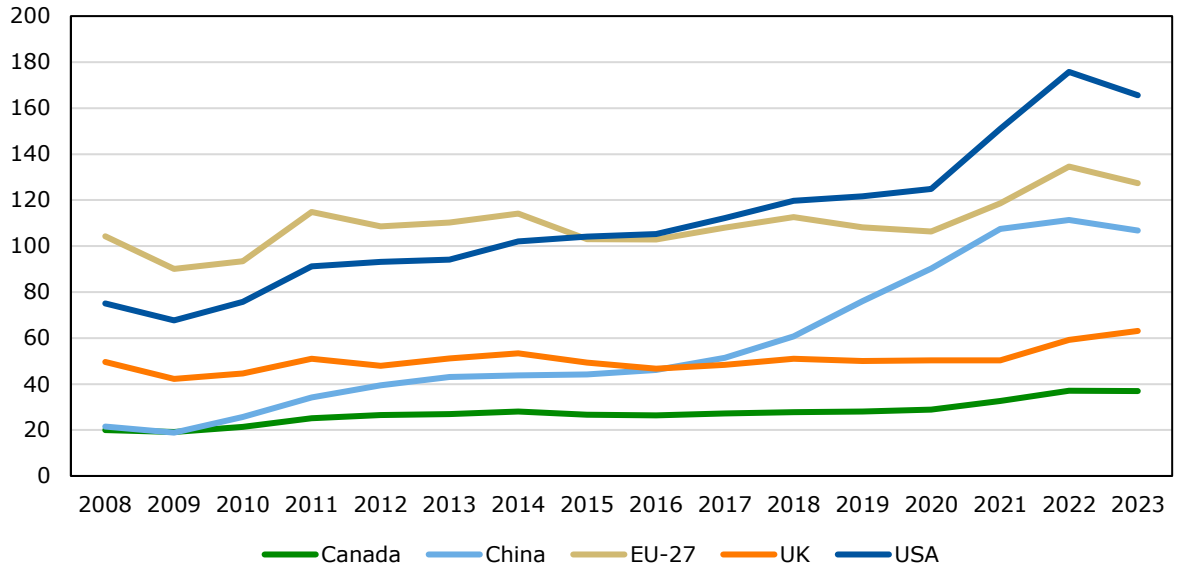

Figure 5-4 *Import of food and drink of all 5 countries, in € billion, in 2008-2023*
Source: UN Comtrade.

Table 5-6 *Import of food and drink products and growth rate by region, in € million, in 2008-2019-2023*

	2008		2019			2023		
	Import value (€m)	Market share (%)	Import value (€m)	Market share (%)	Growth (%) Pre-COVID-19 2008-2019	Import value (€m)	Market share (%)	Growth (%) Post-COVID-19 2020-2023
Canada	19,925	4%	27,998	3%	**41%**	36,967	4%	**28%**
China	21,477	4%	76,083	9%	**254%**	106,796	11%	**18%**
EU27	104,258	19%	108,149	13%	**4%**	127,284	13%	**20%**
UK	49,624	9%	49,994	6%	**1%**	63,115	7%	**26%**
US	74,995	13%	121,685	15%	**62%**	165,602	17%	**33%**

Source: Calculations by Wageningen UR based on data from UN Comtrade data, 2023. Exchange rate applied is the annual average.

[42] Innova Markets Insights, 2024. Consumer Food Trends in China. https://www.innovamarketinsights.com/trends/consumer-food-trends/
[43] Memon et at. 2021. Investigation of COVID-19 Impact on the Food and Drink Industry: China and India Perspective. https://www.mdpi.com/2304-8158/10/5/1069

The trade indicators used are the relative export advantage (RXA) and the relative import advantage (RMA) (Appendix 4). These measure the EU's specialisation in exporting (RXA) or importing (RMA) food and drink products compared to the world average. In 2008, 2019 and 2023, the EU had a strong trade surplus performance due to decreasing imports and stable exports. In 2023, the EU had the highest and positive relative trade advantage (RTA), at 0.39 for manufactured food and drink products, followed by Canada with 0.23 (Appendix 2). Conversely, the US, China, and the UK, had negative RTAs, due to the trade deficit in food and drink products in 2023. In the US, the export of food and drink products was stable pre-COVID-19 (2008-2019). However, post-COVID-19 in 2023, these exports declined and US imports increased, especially from the EU. EU exports to the US increased in value which is partly attributed to the rising prices of specific products such as olive and olive oil, and to EU's high inflation rate.[44] Between 2019 and 2023, the UK had an even larger trade deficit, with increased imports and decreased exports of food and drink products. For Canada trade developed slightly different because both imports and exports increased, but the increase of imports was lower than the exports, leading to an improvement in the trade balance in 2019 and 2023. Trade is a major strength of the EU food and drink industry and the region has performed better compared to the other countries.

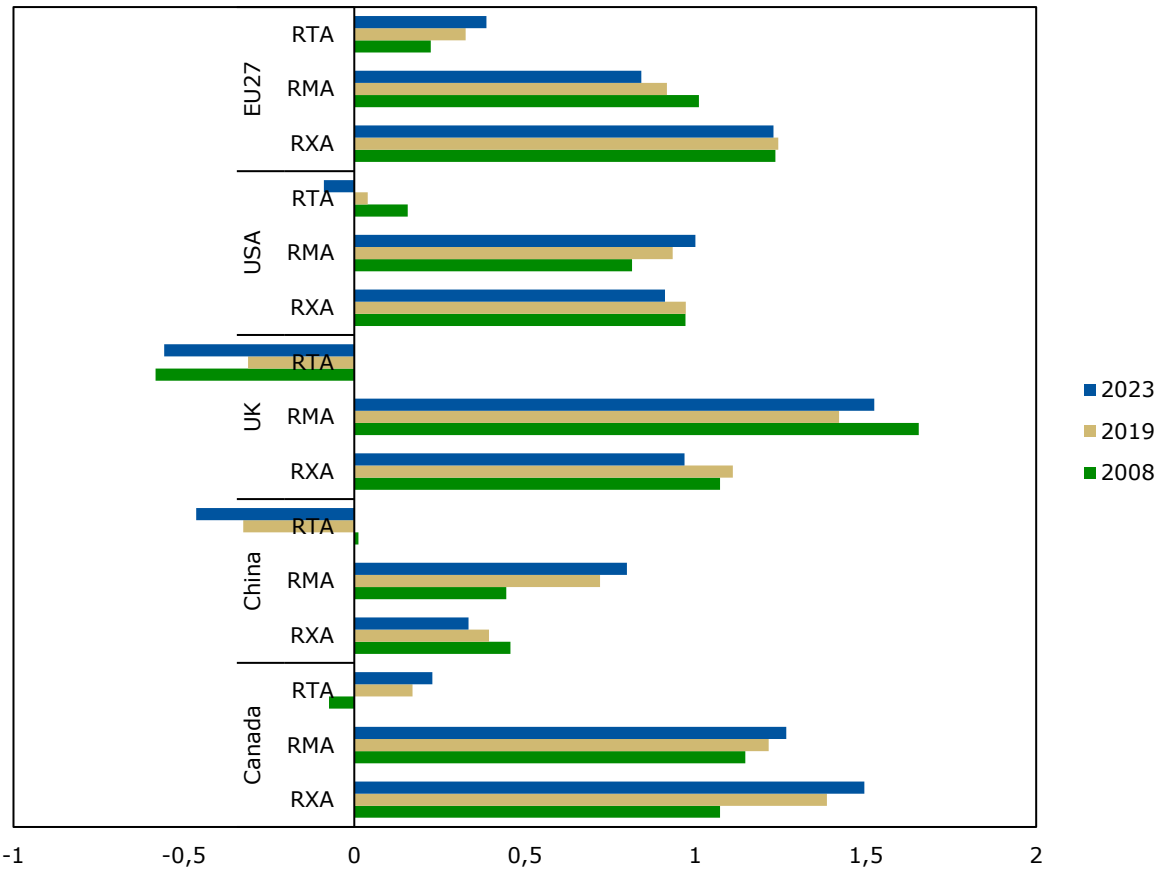

Figure 5-5 *Trade indicators for all countries, in 2008, 2019, and 2023*
Source: Calculations by Wageningen UR based on UN Comtrade.

Overall, the EU's growth rate performance between 2008 and 2019/2023 for turnover, value added, labour productivity, and trade advantage was above average relative to competitors. Based on the indicators, the US performed better than the EU, Canada, China and the UK between 2008 and 2023, as shown by its above average score, except in trade advantage where it had a negative score in 2023. The below average export market share growth of the EU and the UK decreased between 2008 and 2023. In the same period, China, Canada and the US gained market share as illustrated by their above average score.

[44] FoodNavigator Europe, 2024. The US spent €1.5 billion on EU food imports and here is why. https://www.foodnavigator.com/Article/2024/10/28/US-bumps-up-European-food-and-drink-imports-for-July-2024/

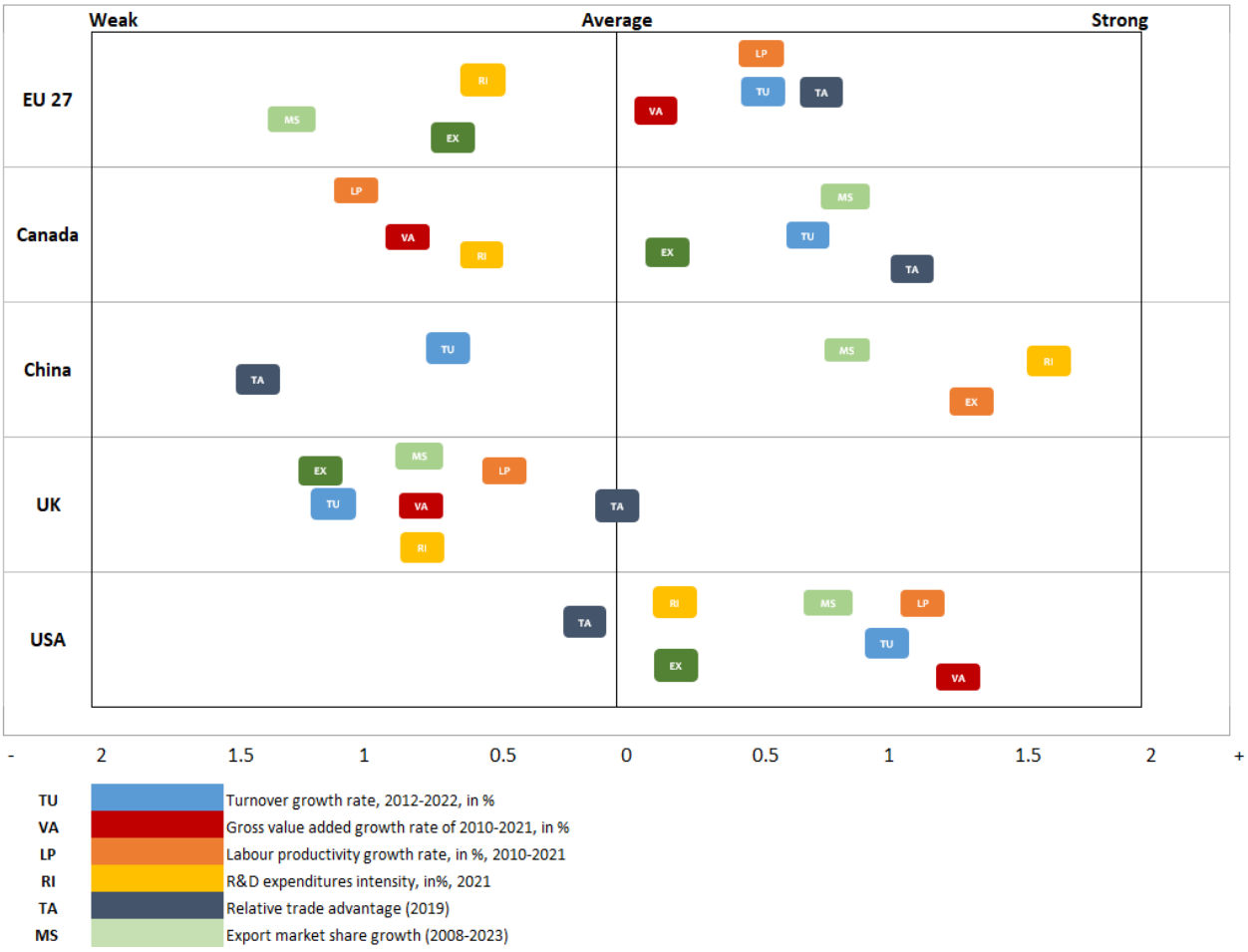

Figure 5-6 *Visual of EU competitiveness based on z-scores of trade and economic indicators*

6 The EU food and drink industry: key success factors and challenges

The EU27 is a strong competitor in the global food and drink manufacturing market, responsible for 19% of the global market share. The EU food and drink industry has strengths that it can leverage, however there are weaknesses to be addressed. This chapter introduces the key success factors and discusses the challenges for the industry. These include areas for improvement, as well as the external opportunities and potential risks it faces in the competitive landscape of global markets.

Strengths

The scale and diversity of the EU food and drink industry is one of its main strengths. It is the largest manufacturing industry in the EU27 economy, directly employing 4.7 million employees. Over 300,000 enterprises are active in the EU food and drink sector, the overarching majority of those (99%) being SMEs. The sector has a strong presence in all EU Member States and represents an integral part of the EU's economy and society. The industry processes 70% of EU agriculture produce and provides high quality and safe food to the benefit of global and European consumers who have high trust in EU food and drink products.

Trade is another important indicator of the strength of the industry. The intra-EU market presents great trading opportunities for EU food and drink enterprises; with 27 markets and around 449 million consumers it offers a large outlet for food and drink products. Expressed in value, the size of food and drink products traded on the EU27 internal market is larger than that of those being traded with third countries. On the other hand, the extra-EU trade surplus for EU27 food and drink products was valued at €81 billion in 2023.

The EU food and drink industry makes great investments in R&D, with a strong focus on sustainability as laid out in the EU Green Deal. Consumers share their increasing demand for more sustainable products, so in line with this, the private sector, including the food and drink industry, is taking steps to meeting consumers demand.

Weaknesses

The analysis shows a number of weaknesses to be tackled by the EU food and drink industry. The industry experts share that stringent and extensive regulations in the EU could lead to high transaction and administrative costs for businesses. In addition, the regulatory burden can lead to low investments in disruptive technologies, especially by SMEs. Moreover, the fragmented internal markets with diverse national policies add to the administrative and cost burden of enterprises. For instance, the EU lacks a common front-of-pack labelling policy, resulting in multiple national policies that may hamper the functioning of the single market.

The average EU27-wide labour productivity is relatively low. But there are some differences between EU27 Member States, such as Belgium, France, and the Netherlands that have a high level of productivity. However, when compared to Canada, the UK and the US, the average labour productivity in the food and drink industry is the lowest in the EU27. Ultimately, this has led to a low value-added growth compared to the US and China. The EU food and drink industry furthermore faces high energy costs, with industrial electricity prices in the EU being twice as high as those in the US and China. Similarly, gas and fuel prices are also much higher in Europe compared to those outside the EU.

Opportunities

Alongside price levels, sustainability is a key concern for European consumers. Sustainability in the food production and logistics sector is not only driven by consumer choices, but also by policy initiatives like the ''competitiveness compass'' framework. This makes the EU well positioned for sustainability transitions in energy and technologies to improve its competitiveness. Similarly, there is a growing consumer trend towards more healthy diets which provides an opportunity for food and drink businesses to tap into new market segments, but also offers opportunities for expanding to new markets with existing products.

The EU recently adopted a competitiveness compass for strengthening its future industrial policy. Boosting the competitiveness of the European industry is high on the political agenda of the new EU Commission, and will help to strengthen the EU's competitive position for all industry sectors, including food and drink.

High energy prices create a challenge in Europe. However current policies stimulate the diversification of energy sources, moving from fossil fuels towards more renewable energy (solar, wind, biomass). While this is an opportunity, renewable energy comes with high transition costs. Even though the industry is currently investing in this shift towards more renewable energy, government support is required to define and support this process.

EU Horizon research funds are dedicated to providing support to enterprises. However, applying for funding is a complex process which requires high administrative and overhead cost for companies. This causes difficulties for SMEs to obtain funds and to be part of such research initiatives. Simplifying the application and administration processes is needed to ensure research funds can be more effectively used by the food and drink industry.

Threats

Climate change affects agricultural production yields and global commodity prices. The effects of climate change are felt all over the globe, although some areas are more affected than others, in particular, South-East Asia and Africa. The effects of climate change in combination with regional political instability has led to rising commodity prices, for example for coffee and cocoa. In addition, according to industry experts, there are there are protectionist tendencies and growing trade tensions that pose a threat to the industry. Global political instability has also led to unstable energy supplies and a rise in energy prices.

At the level of the retail sector, a concentration of retailers' bargaining power can be observed which puts pressure on the margins of agri-food producers and processors. Based on interviews with industry experts, the growing market share of retail discounters and increased introduction of private label products by retailers may reduce innovation by food and drink enterprises.

Finally, industry expert interviews highlight a high and increasing regulatory burden in the EU due to more stringent and extensive regulations leading to high transaction and administrative costs for businesses.

7 Conclusions

7.1 What is the current structure and performance of the EU food and drink industry?

1. The food and drink industry is the largest manufacturing industry in EU27.

a. The food and drink industry is a key pillar of the EU economy, contributing 1.6% to EU27 GDP in 2022. More specifically, the industry contributed 11.3% to the total manufacturing value added in 2022. Between 2008 and 2022, the EU food and drink industry experienced significant growth, with value added increasing by 59% to €266 billion.

b. The food and drink industry has over 300,000 enterprises, accounting for 14.4% of the total EU27 manufacturing industry in 2022. Between 2008 and 2022, the number of enterprises increased by 7%, primarily due to a 56% increase in drink manufacturing enterprises. This in turn was due to the growing demand for EU food and drink products and expansion in the international market.

c. The industry is composed of 10 product categories, the largest is bakery and farinaceous (49%), other food products including cocoa, chocolate and sugar confectionary, tea, coffee, and e.g. seasonings and ready meals (12%), and drinks (11%). The top five sub-sectors (bakery, meat, dairy, drinks, and other food products) account for 89% of the enterprises.

d. In 2022, the food and drink industry has created 4.7 million direct jobs, which is 15.8% of manufacturing industry employment. The largest branch was the manufacture of bakery and starch-based products, with about 32% of total industry employment. Compared to other manufacturing industries in the Draghi report (2024), the food and drink industry employs more people than the pharmaceutical industry (937,000 persons), and the automative industry (2.6 million persons), amongst others.

e. The scale of the EU food and drink industry is one of its main strengths. The intra-EU market alone presents great trading opportunities for EU food and drink enterprises, with 27 markets and around 449 million consumers in 2024. The industry has built up consumer trust due to the high level of food quality and safety and its progress towards market transitions.

f. Another key strength is its SME diversity. In 2022, 99% are small and medium sized (SME; <250 employees), with micro and small enterprises (< 50 employees) accounting for 96% of this total. SMEs are able to adapt quickly to market changes, but face the challenges of limited access to finance, shortage of skilled labour, investment in innovations, and limited economies of scale to reduce production cost and increase value added. Given the important role of SMEs in the industry, industry experts share that it is imperative to provide adequate support to these smaller players to alleviate the procedural and administrative burden, and to provide financial support to adopt and invest in innovations and new technologies.

7.2 What are the trends in the key economic variables and the position of the food and drink industry in the past 15 years?

2. The industry had a robust trade performance with an extra-EU trade surplus growth of 384% from 2008 to 2023. It is also the major food and drink products supplier within the EU27 market.

a. Over the past 15 years, the EU food and drink industry has maintained its strong position as a key contributor to EU27 economic development, adapting to numerous economic, social, and environmental challenges. The total export value of food and drink products in 2023 was €183 billion. From a trade balance of €16.6 billion in 2008, the industry's trade surplus increased by 384% to €81 billion in 2023 due to the significant growth of extra-EU export of 133% from 2008 to 2023. This is exponentially higher than the extra-EU import growth of 65% in the same period. In addition, 23 of the 27 EU countries are net-exporters of food and drink products to the rest of the world. The leading three exporting countries in 2023 were France, the Netherlands, and Italy.

b. The three largest categories of export products are other food products, drinks, and preserved meat and meat products. Conversely, the three largest categories of import products are vegetables and animal oils and fats, processed and preserved fish crustaceans and molluscs, and other food products. In 2023, the top export destinations of EU27 food and drink products were the UK (23%), the US (14%) and China (7%).

c. Intra-EU trade is also important for the industry. The three largest exporters to other EU markets are Germany, the Netherlands, and France. All three countries also form important food and drink import markets.

d. On average, consumption expenditures on food and drink vary between 11% and 25% of the income in EU27 countries, depending on the overall income level in EU countries. In 2023, the total consumption expenditures on food and drink products in EU27 amounted to €1.3 trillion. Although in 2023, the market grew rapidly in monetary terms, it is worth noting that this growth was primarily due to increased prices, and that actual volumes of food consumption decreased.

3. In 2023, the industry had strong economic performance with a turnover of €1.44 trillion and 8% profit margins.

a. From 2008 to 2022, EU food and drink industry turnover increased 61% with the top five sub-sectors (bakery, meat, dairy, drinks, and other food products) accounting for 75% of the total turnover. In 2022, large enterprises with over 250 employees generated 60.8% of the industry's total turnover, while SMEs accounted for the remaining 39.2%. In comparison, the industry's turnover was 50.7% higher than that of the chemicals industry, and 8.1% higher than the automotive industry in 2020.

b. We noted a sharp rise in turnover in 2022, mainly the result of rising food prices and inflation in 2021. These price increases were due to factors including the impacts of global climate change, the Ukraine war, policy uncertainties, and energy prices. Price indices, namely the agricultural commodity price index, harmonised index of consumer prices (HICP), import price index, and the producer price index (PPI) all rose between 2021 and 2023. The high producer price index (PPI) is indicative of the rising production costs, specifically due to inflation increase of 19% resulting from high energy costs and a rise in food commodity prices.

c. Between 2008 and 2022, the gross operating surplus of the EU27 food and drink industry increased from around €67.7 billion to just over €108 billion. More specifically, the gross operating rate for the EU-27 drink industry is higher (14% in 2022) than that of the food industry (6.5%). This growth in total profits was due to the growth in turnover; not because of an increase in overall profitability.

d. Since 2014, the overall profit margins of the food and drink industry have fluctuated at around 8%. In 2020 and 2021, companies profited from increased demand for packaged products during lock-downs and increased retail demand. However, following the increasing commodities, energy and labour costs, in 2022, the profits declined by 0.89 percentage point, and pressure on profits remained high in the following years.

e. From 2008 to 2022, the food and drink industry's social security payments increased by 48%, from €23 to €34.3 billion. This amounted to 11.1% of overall social security payments made by the EU manufacturing industry.

f. Between 2008 and 2022, the average personnel cost in the food and drink industry increased by 36%. This is reflective of the 41% increased labour productivity (€56,331 per person employed in 2022) of the industry in the same period. However, despite this increased productivity, it was 30% lower than the manufacturing industry (€80,638 per person employed in 2022) as a whole. The low productivity is due to the lower adoption and utilisation of new technologies, and a lack of skilled and affordable labour, especially by SMEs. It is important to note that while the overall labour productivity is low, countries such as Belgium and the Netherlands recorded a higher productivity than the industry average with €101,000 and €118,000 respectively.

4. In the last 15 years, the food and drink industry has made significant investments that fostered growth and positioned it a leading industry in the EU27 economy.

a. The gross investment in tangible goods increased by about 41%, reaching 49 billion euro in 2022. This is 14.8% of the total gross investment in tangible goods by the Manufacturing industry. The increase was driven by growing global and intra-EU demand for European food and drink products, and the formation of new enterprises.

b. Between 2008 and 2022, the EU experienced a 63% growth in R&D expenditure, from €1.9 billion to 3.1 billion. The top seven countries (including Italy, Belgium, Spain, and Poland) accounted for 82% of total expenditure. The investments enable the industry to keep up with the changing market demands.

c. Between 2015 and 2022, foreign direct investment (FDI) in the food and drink industry grew by 24% from €135 billion to €167 billion. In 2022, the industry's inward FDI accounted for 18% of the total inward FDI of the manufacturing industry, after the pharmaceutical industry. The higher investment for the pharmaceutical industry was bolstered from the COVID-19 pandemic.

d. Despite past investments, the future is uncertain. Expert interviews revealed that between 2023 and 2024, industry stakeholders are either reducing or putting a halt to investments due to uncertainty and changing regional policies. It is essential to ensure policy stability to ensure industry investment confidence and maintain and/or foster growth.

5. The agri-food chain has strong industry links and interconnections. The food and drink industry is a strong contributor to the agri-food chain, accounting for 26.7% of the value added.

a. The food and drink industry is deeply connected to the broader agri-food chain industries. The four major components of the food value chain are agriculture, the food and drink industry, wholesale and retail, and food and drink services. In 2022, the total value added to the EU27 GDP by these agri-food chain industries was €996 billion.

b. In 2022, the food and drink industry sourced about €268 billion of inputs directly from agriculture, hunting and related services, of which €242 billion were from domestic EU sources, and €26 billion from imports. In monetary terms, 90% of agriculture input expenses in 2022 were linked to the European agriculture sector. The industry buys good and services from other industries such as wholesale trade services (11%) land transport services (4%), warehousing (2%) and energy (2%).

c. Upstream, in 2020, there were 9.1 million farms in the agriculture sector, a 33% decline from 2007. This decline is due to rising production costs, lack of successors, decreasing real income, environmental constraints, cumbersome administrative procedures, and changing agricultural policies. However, overtime, farms are increasing in size and consolidating, becoming more productive, leading to increased agricultural output. In 2022, the agriculture sector employed 9.2 million persons, a 24% decline from 2008; and it is estimated that the EU27 food and drink industry indirectly supported 3.5 million agricultural annual work units, 39% of total agriculture employment in 2022.

d. Further downstream, in 2022 there were 1.1 million food and drink retail companies, a decline from 1.2 million in 2021. Conversely, between 2011 and 2022, the number of employees increased by 8% to 8.5 million, and the value added increased by 54% to €326 billion in food retail. This retail industry trend is mainly due to the high competitiveness and the growing market share of large players and discounters.

e. SMEs play an important role in the EU27 agri-food chain, representing 97% of agriculture holdings, and 99% of the manufacturing and retail industries. However, they are the most vulnerable to political, social, and environmental shocks. Stakeholders in the agri-food chain must continue to collaborate and advocate for strategic policies for their SMEs at a regional level.

7.3 What were the effects of input price increases and other major economic disturbances in the period since 2020?

6. Profit margins have been squeezed due to inflationary pressures along the agri-food chain. These pressures along with three major trends (the increasing retail concentration, the introduction of private label introductions, access to information and the increasing market share of discounters) increases the strong position of the retail industry.

a. In 2022, commodity prices surged with palm oil reaching record highs with a 126% increase. While in 2023, the price of some commodities such as palm oil and soybeans stabilised and even declined, other commodities such as cocoa and coffee were still rising. Furthermore, energy prices, electricity (97% increase) and gas (217% increase) rose between 2021-S1 and 2022-S2.

b. Similarly, fuel prices in Europe are among the highest in the world. This was particularly damaging to the food and drink industry, which relies on gas and electricity for about 80% of its energy inputs. Rising input costs translated to higher production costs, reflected in a significant increase in the PPI. Although these costs decreased in 2023, they remained above pre-pandemic levels.

c. In 2022, the food and drink retail's profit margin was 4.9%, which is lower than that of the manufacturing industry of 8%. The higher margins of the manufacturing industry can be attributed to several factors such as its business model, which includes access to the extra-EU export markets. In addition, the margins of the food industry are lower than the drink industry due to lower raw material requirements.

d. Conversely, in the retail industry, between 2016 and 2023, the retail concentration ratio based on the market share of the largest four retailers increased in many Europeans countries. In 2023, the ratio exceeded 60% for the four retail market leaders in all EU27 countries except Italy, where it was just under 59%, but growing fast. Discounters such as Aldi and Schwarz Group (Lidl) are gaining substantial market share in various markets, and private labels are on the rise.

e. Consumers have become more price sensitive and are downtrading as a result of the inflation. In 2023, discount supermarkets had especially high market shares in Malta (85%), Poland (66%), Cyprus (58%), Denmark (55%), Spain (52%), Germany (48%), and Belgium (47%).

f. Private labels have gained popularity for their competitive pricing and perceived quality, offering consumers an alternative to branded products and downtrading options. In the past 15 years, the share of private labels in new product introductions increased from 25% in 2011 to 30% in 2024. Private labels now account for 39% of the market in Europe; in 2024, their sales were growing faster than those of branded products.

g. Another contributing factor to the retail industry's negotiation power is the access to information on manufacturing costs. Retailers have access to information on food product cost prices from their private-label suppliers, providing a negotiation edge.

7.4 How competitive is the EU food and drink industry compared with some major competing countries and how has competitiveness evolved?

7. The EU27 food and drink industry is the world's largest, with 19% of the global food and drink manufacturing market share in 2023.

a. From 2008 to 2023, the EU27 food and drink industry maintained the largest global market share in terms of value (21% in 2008; 19% in 2023), followed by the US (10% in 2008; 11% in 2023). The competitor focus in this report is mainly on the US, the UK, China, and Canada. The selection of countries is based on EU27's important export markets, as well as the EU27 as an important import market for these countries.

b. In the EU27, the number of industry employees increased by a third from 2012-2022, more than in the UK (29%) and the US (10%). In the same period, the EU27 experienced a moderate growth in numbers of food and drink enterprises (3%) compared to the UK (60%) and the US (64%). However, in absolute numbers, the EU has the largest number of enterprises.

c. In 2021, the EU27 and the US had the largest value added, with €250 million and €213 million respectively. Between 2010 and 2021, the EU27 food and drink industry gross value added grew by 50%, a rate higher than that of Canada and the UK. In contrast, gross value added in the US food and drink industry increased by 71%. This difference can be attributed to several factors including differences in labour productivity, technology use, and energy efficiency in the US.

8. EU27 industry competitiveness is pressured by the US and China, which are leveraging technologies and productivity.

a. In 2021, labour productivity of the US's food and drink industry (€130,000 per person employed) was 2.4 times higher than that of the EU27. The high labour productivity in the US is a result of investment and adoption of new technologies.

b. Diverging national policies across the various countries add to EU manufacturers' market accessibility challenges, costs, and lengthy administrative processes. Furthermore, the fragmented markets characterised by varying consumer preferences, labelling laws, and language barriers, make it difficult for companies to capture value added, especially for SMEs. Comparatively, in China, the US and Canada, markets and policies are much more homogenous.

c. In 2021, the EU food and drink industry spent 0.3% of the turnover on research and development (R&D). Although higher than Canada and the UK, it is five times less than China and less than a half of that of the US. The lower EU27 labour productivity compared to the US can also be attributed to lower innovations and automation. For instance, the US leads in the number of robots employed in food manufacturing, with 89 robots per 10,000 employees. In comparison, EU27 countries have 75 robots per 10,000 employees, but only 1 in 10 food producers currently use them. Additional

investigation is required to understand the relatively low rate of adoption of automation in the EU food and drink industry.

d. Between 2010 and 2022, EU27 investment in the food and drink industry increased by 62%, from €1.9 billion to €3.1 billion. Comparatively, the US food and drink industry spent about €6.3 billion on R&D in 2021, while in 2022, Chinese food and drink companies spent €8.5 billion. Investing in innovation by the EU food and drink industry will increase its added value by keeping up with global consumer markets trends and product demands, optimizing processes, reducing environmental impact.

e. Between 2009 and 2019, the growth of the EU's gross operating profit (41%) was less rapid than that of the US (84%), but higher than growth in Canada and the UK. Nationally, the German food and drink industry demonstrated the highest competitive pressure with the lowest gross operating margin of 6% and high concentration of discounters. The Chinese and French food and drink industries showed a robust gross operating margin growth of 12% in 2019. Despite growing pressure on costs, the food and drink industries in EU27 are unable to pass costs on to retailers due to their growing power (see 6b).

f. Energy prices are an important contributor to the growing pressure on the competitiveness of the EU27 food and drink industry. In 2023, energy prices in the EU27 were twice or even three times higher than the US and China.

9. Trade is a strong indicator of EU27's competitiveness. However, the region is losing trade market share to China and the US.

a. The EU27 is the world's largest exporter of food and drink products. EU27 food and drink exports of €187 billion are 84% higher than those of the US (€102 billion) and about three times as high as those of China (€63 billion). However, pre- COVID-19 (2008-2019), China had the largest export growth rate of 83%, followed by the US and Canada with 54% each.

b. When compared to Canada, China, EU27 and the UK, the US is the largest import market valued at €166 billion in 2023. But China is becoming an increasingly attractive market for food and drink products with import valued at €107 billion in 2023. Specifically, China had the highest import growth with 254% pre-pandemic (2008 - 2019). This growth of the food and drink industry of China is ascribed to the growing middle class, an increasing consumer demand for products for healthy diets, and a growing interest in premium and indulgent alcoholic drinks and food products.

c. Pre- COVID-19 (2008-2019), the global export market share of the EU27 and UK decreased, by 2 and 1 percentage points respectively while that of Canada and the US remained stable. Only China gained market share by 1 percentage point in the same period. Post COVID-19 (2020-2023), EU27, China and the UK maintained their export market shares while the US and Canada increased theirs by 1 percentage point each.

7.5 What are the most important strengths, weaknesses, threats, and opportunities of the EU food and drink industry?

10. Finally, while the food & drink industry faces political and environmental challenges, there are several opportunities to be leveraged.

a. Within the EU, the industry (especially SMEs) faces several challenges from high input costs, inflation, and tighter regulations and high transaction and administrative costs. There is an urgent need for the EU to sustain its global leadership by increasing investments in innovation, diversifying trade, increasing labour productivity, energy efficiency and implementing supportive policies.

b. The industry can be positioned to leverage the European Commission's new industrial policy for innovation and strengthening the single market. In addition, EU funds are available for industry stakeholders, but they have complex and convoluted application processes. Industry stakeholders should advocate for simplified application processes to reduce the high administrative and personnel costs, and the time burden.

c. The increase in energy costs revealed the vulnerability of the manufacturing sector to imported energy. Therefore, transition of energy sources from less fossil to more renewable energy (solar, wind, biomass) is imminent. All manufacturing stakeholders, beyond the food and drink industry, need to collectively develop strategies and organise dialogues with government at a regional and national level for this transition.

d. Within the EU and along the agri-food chain, the continuous growth of private labels may reduce innovation and further increase the power shift towards retailers and competition for branded products. So continued focus on quality and sustainability is important for the industry.

e. At a global level, growing political instability (Ukraine war, Africa, Latin America), protectionism in markets redefining tariff schemes for EU exports, climate change, are all threats currently being faced by the industry. While the industry has limited control of external factors, it should develop mitigating strategies to alleviate their impact, such as expanding to new geographies.

Sources and literature

Commission publishes transition pathway for a more resilient, digital and green retail ecosystem - European Commission. (March 12, 2024). Retrieved from https://single-market-economy.ec.europa.eu/news/commission-publishes-transition-pathway-more-resilient-digital-and-green-retail-ecosystem-2024-03-12_en

Competition Bureau Canada, 2023. *Canada needs more grocery competition: Competition bureau retail grocery market study report*. https://competition-bureau.canada.ca/sites/default/files/attachments/2023/CB-Retail-Grocery-Market-Study-Report-EN-2023-06-23.pdf.

Draghi, M., 2024. *The Future of European Competitiveness Part B: In-depth analysis and recommendations*, European Commission. Belgium. Retrieved from https://coilink.org/20.500.12592/9y7v1o8 on 11 Nov 2024. COI: 20.500.12592/9y7v1o8.

EuroCommerce. (2024, April 25). *Signs of Hope: The state of grocery Retail 2024 - EuroCommerce*. https://www.eurocommerce.eu/2024/04/signs-of-hope-the-state-of-grocery-retail-2024/

European Commission, Directorate-General of Economic and Financial Affairs (2022). Assessment of the labour productivity developments in Lithuania. Investment and labour productivity in the EU. National Productivity Board.

FoodDrinkEurope (2023). Data & Trends EU Food and Drink Industry. Retrieved from https://www.fooddrinkeurope.eu/wpcontent/uploads/2023/12/FoodDrinkEurope-Data-Trends-Report-2023-digital.pdf

Food and Drink Federation (FDF) 2023. United Kingdom https://www.fdf.org.uk/fdf/resources/

Japan Ministry of Economy, Trade and Industry (METI) (2023). Economic census for business activity. https://www.e-stat.go.jp/en/stat-search/database?page=1&query=manufacture&layout=dataset&toukei=00200553&tstat=000001145590&open_date=202205&collect_area=000&statdisp_id=0003449740&metadata=1&data=1

Katsinis, A., Lagüera-González, J., Di Bella, L., Odenthal, L., Hell, M., Lozar, B. Annual Report on European SMEs 2023/2024, Publications Office of the European Union, Luxemburg, 2024, doi:10.2826/355464

Kuik, F., Lis, E., Paredes, J., & Rubene, I. (2024). *What were the drivers of euro area food price inflation over the last two years?* https://www.ecb.europa.eu/press/economic-bulletin/focus/2024/html/ecb.ebbox202402_04~9b36bced23.en.html

Logatcheva, K., & van Galen, M. A. (2018). The EU food and drink industry use of domestic raw material. (Factsheet Wageningen Economic Research; No. 2018-086). Wageningen Economic Research. https://edepot.wur.nl/463407

National Bureau of statistics of China (2023). China statistical yearbook. https://www.stats.gov.cn/english/Statisticaldata/yearbook/

OECD (2023). STAN structural indicators (iSTAN). Structural business statistics ISIC Rev. 4 (Edition 2023) Accessed on October 15, 2024

Social Security Tax Rates for Employers in Europe. https://www.eurodev.com/blog/social-security-taxes-rates-employers-europe. Accessed 18 Oct. 2024.

Stundzienne and Saboniene (2019). *Tangible investment and labour productivity: Evidence from European manufacturing*. (PDF) Tangible investment and labour productivity: Evidence from European manufacturing

Tabe-Ojong, P., et al. 2024. International Food Policy Research Institute (IFPRI). *Soaring cocoa prices: Diverse impacts and implications for key West African producers*. https://www.ifpri.org/blog/soaring-cocoa-prices-diverse-impacts-and-implications-key-west-african-producers/

US Bureau of labor statistics (2022) & United States Census Bureau (2023). (link) Accessed on October 17, 2024

U.S. Energy Information Administration (EIA) https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_03

USDA ERS - Food and Beverage Manufacturing. (n.d.). Retrieved from https://www.ers.usda.gov/topics/food-markets-prices/processing-marketing/food-and-beverage-Manufacturing/

Zaalmink, W., and de Groot, M., 2022. *Agricultural Education in Bulgaria, Hungary, Poland and Romania*. Ministry of Agriculture, Nature and Food Quality of the Netherlands commissioned by the agricultural counsellors of the Netherlands to Bulgaria, Hungary, Poland and Romania.

Appendix 1 Overview of key indicators of the Manufacturing industry

Table A1.1 *Key structural indicators of the EU27 manufacturing industry in 2022 or 2023, depending on the indicator*

Key industries in the Manufacturing sector	No of enterprises, 2023	No of persons employed, 2023	Value added (mln Euro), 2022	Net turnover (mln Euro), 2023
Manufacturing (C)	*2,145,006*	*30,095,255*	*2,419,775*	*9,408,172*
Total Manufacture of food and drink (C10 and C11)	**306,130**	**4,715,576**	**265,851**	**1,470,476**
Manufacture of tobacco products	306	40,641	8,182	29,010
Manufacture of textiles	65,518*	528,878	24,000*	83,157
Manufacture of wearing apparel	130,782	729,000	22,000	76,000*
Manufacture of leather and related products	33,196	400,000	19,250	64,451
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	160,704	920,000	55,000	170,000
Manufacture of paper and paper products	18,521	630,000	60,200	223,000
Printing and reproduction of recorded media	100,715	530,000	23,400*	67,000
Manufacture of coke and refined petroleum products	795	157,553	79,273	586,062
Manufacture of chemicals and chemical products	31,141	1,245,096	165,880	640,791
Manufacture of basic pharmaceutical products and pharmaceutical preparations	4,000	668,034	:	:
Manufacture of rubber and plastic products	54,715	1,620,000	107,000	400,000*
Manufacture of other non-metallic mineral products	91,804	1,182,880	86,399	272,368
Manufacture of basic metals	15,162	880,000	90,000	470,000
Manufacture of fabricated metal products, except machinery and equipment	409,632	3,703,808	216,840	654,139
Manufacture of computer, electronic and optical products	36,800	1,120,000	:	332,650
Manufacture of electrical equipment	41,000	1,560,000	107,999*	457,000
Manufacture of machinery and equipment n.e.c.	78,155	3,107,168	262,357	910,343
Manufacture of motor vehicles, trailers and semi-trailers	19,074	2,450,000	223,636	1,390,790
Manufacture of other transport equipment	14,894	767,000	70,575	287,000
Manufacture of furniture	129,392	927,280	35,000*	118,262
Other Manufacturing	174,818	973,877	68,244	160,000
Repair and installation of machinery and equipment	227,854	1,239,960	67,062	208,027

Source: Eurostat sbs.

Notes: Data with an * are latest available data from earlier years, Values: Green = highest values; blue - 2nd highest; orange – 3rd highest value.

Appendix 2 Reference tables and figures

Average food price inflation in EU27

Inflation in the EU increased by 19% points between 2021 and 2023, mainly due to the high energy cost and food commodity prices.

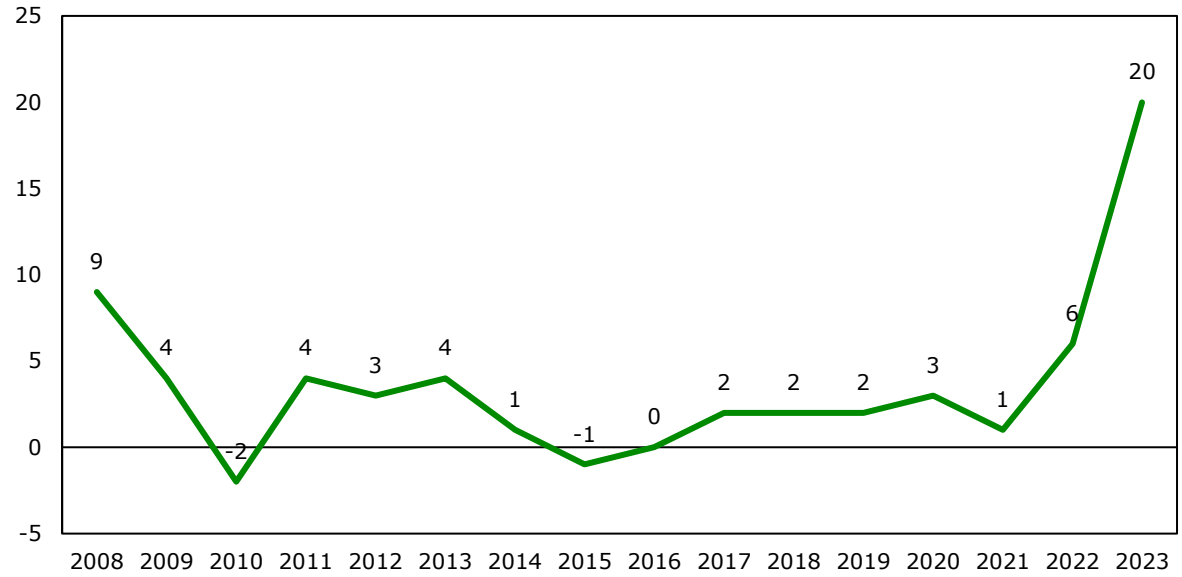

Figure A-2.1 *Average Food Price Inflation across the EU-27, in percentage, in 2008-2023*
Source: FAOSTAT.

Class size of farm holdings in the EU

Subsistence farms with a standard output of less than €2,000 per annum accounted for 38% of all farms in 2020; small and medium size farms with an output between €2,000 and €249,999 per annum accounted for 59%.

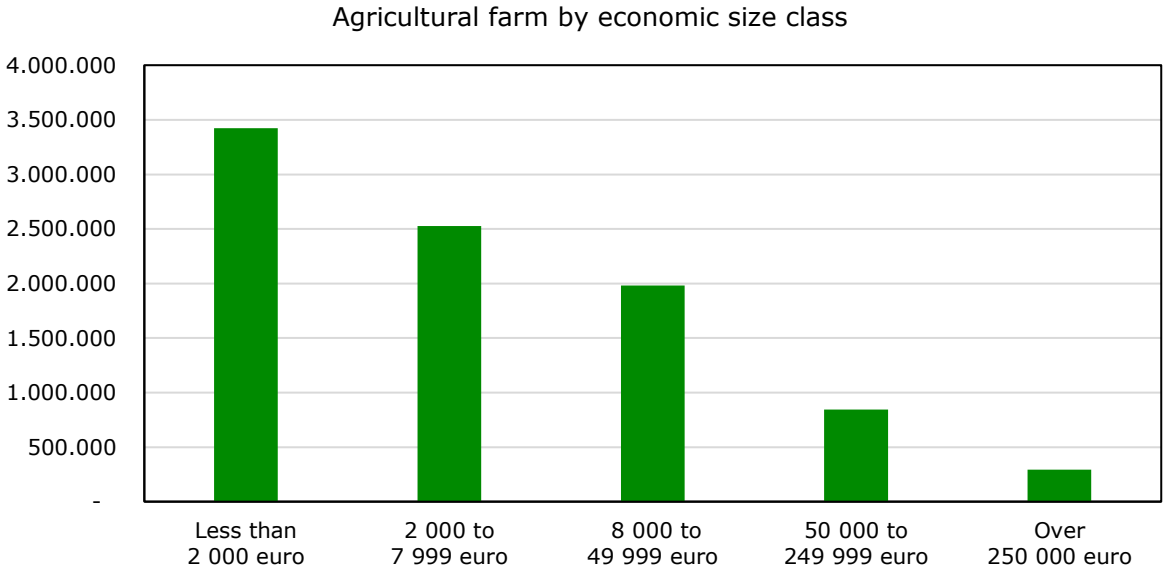

Figure A-2.2 *EU Agricultural farm holdings by economic size class, 2020*
Source: Eurostat ef_lus_main.

Prevalence of private labels in and across EU Member States.

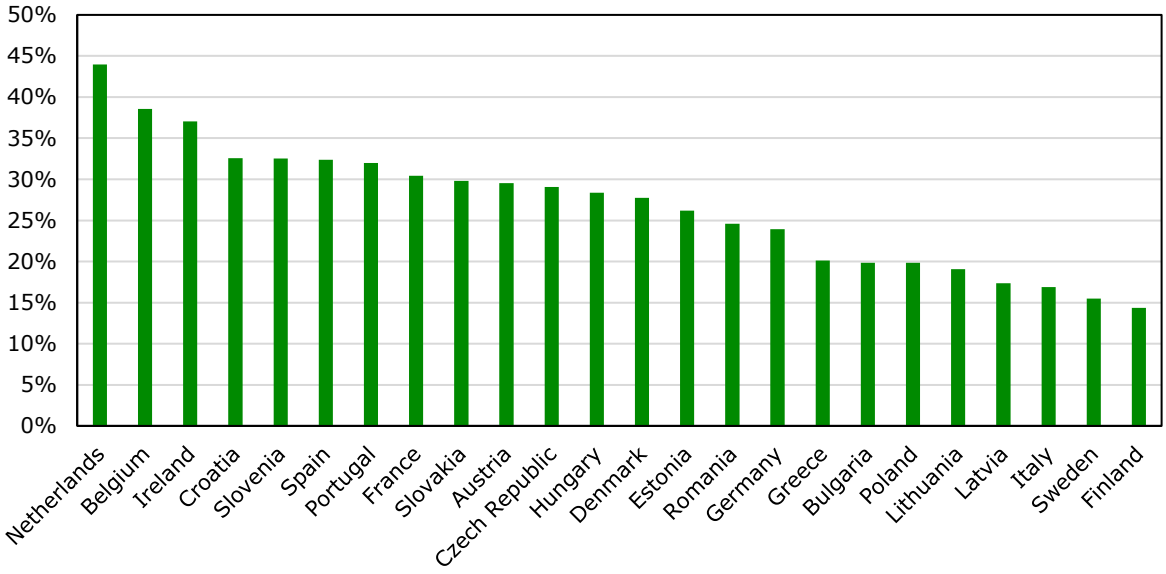

Figure A-2.3 *Private labels in new product introductions in the EU27 in %, 2010-May 2024*
Source: Innova database, 2024.

Foreign direct investment in the EU manufacturing industries, in % of total FDI in the manufacturing industry.

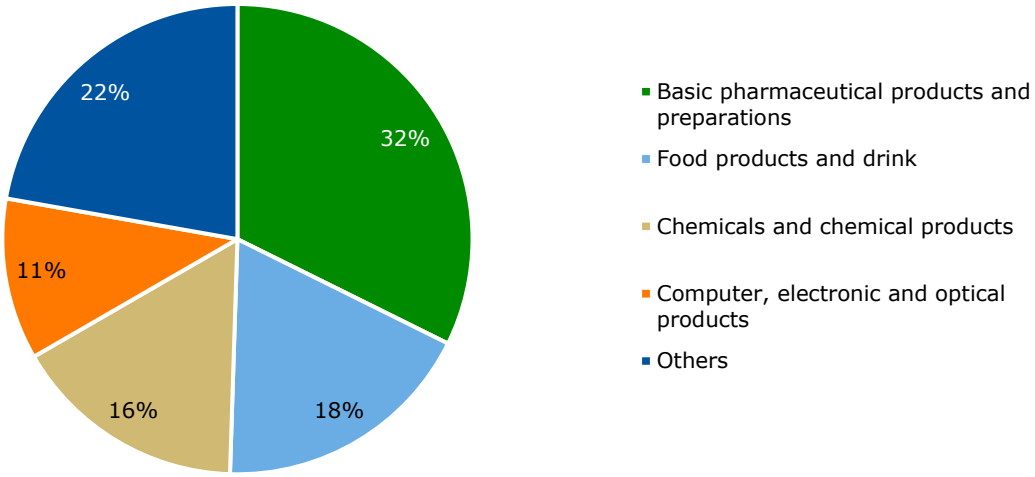

Figure A-2.4*Foreign direct investment in the EU manufacturing industries, in % of total FDI in the manufacturing industry, in 2022*
Source: Eurostat bop_fdi6_pos

Calculated relative export and import advantage of five countries and region

Table A-2.1 *Trade indicators for manufacture of food and drinks in EU27 and 4 competing countries in 2012, 2019, 2022*

	Relative Export Advantage			Relative Import Advantage			Relative Trade Advantage		
	2008	**2019**	**2023**	**2008**	**2019**	**2023**	**2008**	**2019**	**2023**
Canada	1,07	1,39	1,50	1,15	1,22	1,27	(0,07)	0,17	0,23
China	0,46	0,39	0,34	0,45	0,72	0,80	0,01	(0,33)	(0,46)
EU-27	1,24	1,24	1,23	1,01	0,92	0,84	0,22	0,33	0,39
UK	1,07	1,11	0,97	1,66	1,42	1,53	(0,58)	(0,31)	(0,56)
US	0,97	0,97	0,91	0,82	0,93	1,00	0,16	0,04	(0,09)

Appendix 3 UN Comtrade commodity codes

The following commodity codes were included in the analysis of trade data in chapter 5 as being part of the food and drink industry (Table A2.1). The UN Comtrade data are not available directly for an aggregate of the food and drink industry, but are grouped by HS or SITC product groups. We chose to select products from the HS classification to construct a set of commodities reflecting the products of the food and drink industry. The HS classification follows a structure according to the amount of processing involved, generally starting with fresh products and then listing products at higher degrees of processing. However, in some cases, a distinction between fresh and processed products cannot be made. To include them in our set, we used expert judgement about the amount of products in the product group that involve a certain degree of processing.

HS Commodity code	Description
02	02 - Meat and edible meat offal
0304	0304 - Fish fillets and other fish meat (whether or not minced); fresh, chilled or frozen
0305	0305 - Fish, dried, salted or in brine; smoked fish, whether or not cooked before, or during the smoking process
0306	0306 - Crustaceans; in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked, cooked or not before or during smoking; in shell, steamed or boiled, whether or not chilled, frozen, dried, salted or in brine
0307	0307 - Molluscs; whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked molluscs, whether in shell or not, whether or not cooked before or during the smoking process
0308	0308 - Aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine; smoked aquatic invertebrates other than crustaceans and molluscs, whether or not cooked before or during the smoking process
0309	0309 - Flours, meals and pellets of fish, crustaceans, molluscs and other aquatic invertebrates, fit for human consumption
0401	0401 - Milk and cream; not concentrated, not containing added sugar or other sweetening matter
0402	0402 - Milk and cream; concentrated or containing added sugar or other sweetening matter
0403	0403 - Yogurt; buttermilk, curdled milk and cream, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa.
0404	0404 - Whey and products consisting of natural milk constituents; whether or not containing added sugar or other sweetening matter, not elsewhere specified or included
0405	0405 - Butter and other fats and oils derived from milk; dairy spreads
0406	0406 - Cheese and curd
040790	040790 - Birds' eggs, in shell; preserved or cooked
0408	0408 - Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded, frozen or otherwise preserved, whether or not containing added sugar or other sweetening matter
0409	0409 - Honey; natural
0710	0710 - Vegetables (uncooked or cooked by steaming or boiling in water); frozen
0711	0711 - Vegetables provisionally preserved, but unsuitable in that state for immediate consumption
0712	0712 - Vegetables, dried; whole, cut, sliced, broken or in powder, but not further prepared
0713	0713 - Vegetables, leguminous; shelled, whether or not skinned or split, dried
0714	0714 - Manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or inulin content; fresh, chilled, frozen or dried, whether or not sliced or in the form of pellets; sago pith
0801	0801 - Nuts, edible; coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled
0802	0802 - Nuts (excluding coconuts, Brazil and cashew nuts); fresh or dried, whether or not shelled or peeled
0811	0811 - Fruit and nuts; uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter
0812	0812 - Fruit and nuts provisionally preserved, but unsuitable in that state for immediate consumption
0813	0813 - Fruit, dried, other than that of heading no. 0801 to 0806; mixtures of nuts or dried fruits of this chapter

HS Commodity code	Description
0814	0814 - Peel of citrus fruit or melons (including watermelons); fresh, frozen dried or provisionally preserved in brine, in sulphur water or in other preservative solutions
09	09 - Coffee, tea, mate and spices
11	11 - Products of the milling industry; malt, starches, inulin, wheat gluten
1208	1208 - Flours and meals of oil seeds or oleaginous fruits; other than those of mustard
15	15 - Animal, vegetable or microbial fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
16	16 - Meat, fish, crustaceans, molluscs or other aquatic invertebrates, or insects; preparations thereof
17	17 - Sugars and sugar confectionery
18	18 - Cocoa and cocoa preparations
19	19 - Preparations of cereals, flour, starch or milk; pastrycooks' products
20	20 - Preparations of vegetables, fruit, nuts or other parts of plants
21	21 - Miscellaneous edible preparations
22	22 - Beverages, spirits and vinegar
23	23 - Food industries, residues and wastes thereof; prepared animal fodder

Appendix 4 Competitiveness analysis methodology – key indicators

Following the analysis of the historical trends between 2008 to 2023, we can conclude that the food and drink industry is the leading EU manufacturing industry. In this subsection, we present a competitiveness analysis of the EU food and drink industry in comparison with its leading global counterparts. This analysis underscores the important role of the EU food and drink industry on a global scale.

The methodology used for the competitiveness analysis is derived from that of assessing the competitiveness of the food industry by Wijnands et al. as used in their studies on the competitiveness of the European food industry (Wijnands et al., 2007, 2008, 2014, 2015 and 2016; Van Berkum et al., 2014;). As such, the indicators for the analysis include the trade, labour productivity, value added, profit, and R&D expenditure. In addition, investment on research and development (R&D) has been added as an indicator. We did not perform an extensive literature review and the indicators are derived from some key papers by Wijnands et al. Therefore, the overview below is not exhaustive and a distinction is made between trade and economic performance measures of competitiveness.

A4.1 Key indicators for the analysis

Trade - Revealed comparative advantage indices
The export share on the world market is a straightforward performance indicator measuring competitive performance (Wijnands and Verhoog, 2016). We take the difference between two periods of a country's export share on the world market, measuring growth as the change and not an annual growth rate between two periods. The periods chosen for the analysis are pre-COVID (2018-2019) and post-COVID (2021-2022).

The relative importance of an industry in the total trade is usually measured by the Revealed Comparative Advantage (RCA) or Balassa index or specialisation index (Latruffe, 2010; Wijnands et al., 2008; Fertö and Hubbard, 2003; Wijnands and Verhoog, 2016). The RCA measures a country's exports of a commodity relative to its total exports, compared to the export performance of other countries. More specifically, it measures the export share of a product from a particular country in global exports of that product, relative to the country's share in global exports of all products. It quantifies whether a country is relatively specialised in exporting a specific good or service compared to the rest of the world. The three indices used for the trade analysis include:

$$RCA_{Ai} = \frac{\frac{X_{Ai}}{\sum_{j \in P} X_{Aj}}}{\frac{X_{wi}}{\sum_{j \in P} X_{wj}}} \geq 1$$

Where

P is the set of all products (with $i \in P$),
X_{Ai} is the country A's exports of product i,
X_{wi} is the worlds's exports of product i,
$\Sigma_{j \in P} X_{Aj}$ is the country A's total exports (of all products j in P), and
$\Sigma_{j \in P} X_{wj}$ is the world's total exports (of all products j in P).

It measures the comparative export advantage over other countries in producing a particular good.

$$RXA_{ict} = \frac{X_{ict} / X_{iwt}}{XT_{ct} / XT_{wt}}$$ Export value of specific industry i from country c in period t.

RXA_{ict} The relative export advantage index for industry i, country c in period t.
X_{ict} The export value of industry i, country c in period t.
X_{iwt} The export value of industry i of the world w in total in period t.
XT_{ct} The total export value of all industries of country c in period t.
XT_{wt} The total export value of all industries in the world in period t.

The opposite of the relative export advantage index is the relative import advantage index:

$$RMA_{ict} = \frac{M_{ict} / M_{iwt}}{MT_{ct} / MT_{wt}}$$ import value of specific industry i from country c in period t.

RMA_{ict} The relative import advantage index for industry i, country c in period t.
M_{ict} The import value of industry i of country c or of the world w in total in period t.
M_{iwt} The import value of industry i of the world w in total in period t.
MT_{ct} The import value of all industry i of country c in total in period t.
MT_{wt} The total import value of all industries in the world in period t.

An RXA index of 1 indicates that a country is equally specialised in the production of the goods as the total world exports; a level under 1 means relatively unspecialised, and above 1 means relatively specialised. The latter indicates an export advantage, as relatively more is exported than the world average. The opposite is applicable to the import.

The Relative trade advantage index (RTA) = the Relative export advantage index (RXA) less (-) the Relative import advantage index (RMA)

A limitation of the RXA index is that it may overstate an industry's competitiveness due to the influence of re-export activities. These activities can skew the results, as they reflect goods that are imported and then exported again without significant domestic value-added production. Re-exports might be driven by the strong performance of other sectors, such as logistics, or by advantageous natural and infrastructural conditions, such as access to major seaports or airports, rather than by the intrinsic competitiveness of the industry itself. A positive RTA indicates a competitive advantage, as the exports exceed the imports. Negative values signify competitive disadvantages (Scott and Vollrath, 1992; Wijnands and Verhoog, 2016).

Apparent labour productivity

Labour productivity affects market prices. Growth of labour productivity improves industrial competitiveness in international markets and it is often seen as a crucial determinant of competitiveness. The labour productivity is the real value added divided by the number of employees. The indicator cannot be compared between different countries due to different levels of Purchasing Power Parities. By taking the annual growth of the labour productivity, the indices of different countries can be compared. This indicator can be seen as a measure of potential competitiveness.

Value added

The value added is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. The analysis focuses on the annual growth of the value added of a specific industry in the total manufacturing industry. This helps to reflect on the competition for product factors (e.g. goods, labour pricing/capital) between different industries within a country.

Profitability
The profit growth rate is compared between the EU and the other economies over the same period. The profitability data include the gross operating surplus and profits based on national accounts. This comparison provides insights into the relative profitability of industries in the EU versus other global economies, highlighting the financial performance and competitive position of the EU in comparison to its peers.

R&D expenditure intensity
Measuring, benchmarking, or quantifying the processes that incorporate innovation is inherently challenging. As a result, expenditure on R&D is often used as a proxy for innovation, as it enhances the ability to develop new products and processes, as well as improve existing ones, thereby meeting the demands of the export market. The growth in R&D investment during a specific period can serve as an indicator of an industry's competitive advantage, reflecting its capacity to innovate and maintain or improve its position in global markets.

Exchange rates
Where required, the exchange rate used is the average rate for the year. The average exchange rate used is taken from the European Central Bank (Euro foreign exchange reference rates).

Visualisation of the competitiveness

For visual purposes, indicators for the countries are presented in Z-scores. A 'Z-score' is a standard score that is dimensionless, has an average of 0 and a standard deviation of 1. In a graphic representation of Z-scores (standardised scores), indicators of one country can be seen according to its relative position against indicators of other countries included in the analysis. In this way it is possible to visualise the assessment: whether the country is positioned weak, average or strong with respect to its competitors. Z-scores are calculated in the following way: Z-SCORE = (INDIVIDUAL INDICATOR –AVERAGE)/STANDARD DEVIATION. The z-score calculations reveal the standard deviation values of the indicators. A positive z-score indicates an above average data point, a negative z-score indicates a below average data point.

Interpretation of results

1. Competitiveness is analysed by benchmarking the EU-27 against four selected countries. In this analysis, relative developments are compared instead of absolute values. **A positive score for EU-27 means a relative improvement compared to the benchmark countries, irrespective of the development of the absolute value**. Likewise, a negative score reflects a relative decrease, irrespective of the absolute value. Hence, increased labour productivity in absolute terms may still lead to a negative score if other benchmark countries experienced higher increases in labour productivity. The same applies to the other indicators for competitiveness.
2. The trade figures used for the RTA are based on the trade from all European Member States to countries outside the EU, while intra-EU trade is not included. This approach leads to more comparable figures with other regions, as internal trade within these regions are also excluded from the figures. However, the chosen approach means that figures on trade flows in this study may differ from alternative figures that do take intra-EU trade into account.
3. The selection of regions only covers part of the world. Developments in regions other than those selected as benchmark countries are not included in the benchmark analysis of competitiveness. Developments in the EU-27 competitiveness may show a different picture if other countries were included in the analysis. Hence, the results should be interpreted with a certain degree of caution, especially for less relevant sub-sectors in the benchmark countries.

Wageningen Social & Economic Research
P.O. Box 88
6700 AB Wageningen
The Netherlands
T +31 (0)317 48 48 88
E info.wser@wur.nl
wur.eu/social-and-economic-research

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To explore the potential of nature to improve the quality of life

Wageningen Social & Economic Research
P.O. Box 88
6700 AB Wageningen
The Netherlands
T +31 (0) 317 48 48 88
E info.wser@wur.nl
wur.eu/social-and-economic-research

Report 2025-035

The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 7,700 employees (7,000 fte), 2,500 PhD and EngD candidates, 13,100 students and over 150,000 participants to WUR's Life Long Learning, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.