

Report

of the accelerated sector inquiry into the Hungarian market for milk
and dairy products

Budapest, 2023.



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Executive summary

The objective of the accelerated sector inquiry conducted by the Hungarian Competition Authority

Food inflation is set to soar in Hungary in 2022, as it is across Europe. The significant price increase may be driven by a number of factors, including restrictions on competition or competition law infringements, although the reality of these is limited given the very fast growing, significant and cross-sectoral inflation problem. However, the Hungarian Competition Authority (GVH) has done its utmost, using the tools at its disposal, to analyse the causes of the increase in food prices and to identify the possible competition law reasons behind the surge in inflation.

The sector inquiry, launched on 20 January 2023, focused on the domestic market for milk and dairy products, following concerns about potential distortions of competition in the sector. According to the information available to the GVH, there was a significant increase in consumer prices for a number of products in the domestic dairy sector. At the same time, the indications received by the GVH show a weakening trend in the supply position of domestic processors active in the production and processing of dairy products.

The investigation was initiated in view of the significant share of milk and various dairy products in the domestic consumer basket. Demand for these products in Hungary is met by domestic dairy processors on the one hand and by importers on the other. The most important players in the domestic dairy sector are dairy farmers supplying raw cow's milk, dairy processing plants, dairy wholesalers and retailers, food retail chains, which ultimately serve consumers at the end of the supply chain. However, the GVH also considers that it is appropriate to examine to what extent the development of concentration within the product category, including changes in the share of private label products, practices that hinder competition on the free market and other circumstances, may have contributed to the observed outcomes (high price increases).

The procedure

Following the initiation of the accelerated sector inquiry, the GVH's staff carried out a number of dawn raids, including procedural actions at several businesses, including dairy processors and food retail chains. In parallel, the GVH carried out extensive data collection at all levels of the supply chain in the domestic dairy sector: the competition authority also sent requests for information to dairy farmers, dairy processors, cooperatives, retailers, the Institute of Agricultural Economics Nonprofit Kft. (AKI) and the Milk Interbranch Organisation and Dairy Board (Dairy Board).

The GVH would like to thank all the companies contacted for their cooperation, which – in line with the schedule of the accelerated sector inquiry – helped the fact-finding process with detailed answers within a short timeframe. Their cooperation has contributed to the GVH's effective investigation and assessment of the competitive conditions in the domestic market for milk and dairy products.

Main findings of the sector inquiry

The data summaries and descriptions in the report are based on information gathered during the on-site investigations carried out during the procedure, as well as on more than 140 submissions from market players, and on the evaluation of contracts and documents relating to business relationships and commercial practices as well as on other documents in the sector. The findings and recommendations resulting from the sector inquiry are therefore not based on individual opinions, indicators of selected market players or scattered information – the relevant legislation provides the GVH with a broad fact-finding toolbox precisely to enable the competition authority to draw on comprehensive factual information when formulating the results of the sector inquiry.

The statutory task of the national competition authority in sector inquiries is (also) to map the structure of competition in a given sector, the competitive conditions prevailing there, and if it detects distortions, to report them and use the tools at its disposal to protect competition. The GVH's primary objective is to protect domestic consumers, which is why the national competition authority considers it important to use all the means at its disposal to help curb food inflation. However, free market competition is not only beneficial for consumers, it can also guarantee the international competitiveness of domestic industries in the longer term.

In the light of the above, the GVH makes the following findings and recommendations based on the results of the accelerated sector inquiry into the domestic market for milk and dairy products presented in this report.

Competitive proposals to reduce inflation

1. Review of the base price forecast of raw milk

The GVH proposes to revise the methodology used by the Milk Interbranch Organisation and Dairy Board for the base price forecast for raw milk. The methodology is based on a price formula, some elements of which may further increase the price of dairy products in 2023, thus fuelling inflation. Following the GVH's proposal, the Dairy Board started a revision of the base price forecast for raw milk in May 2023 and suspended the publication of the base price forecast calculated according to the old methodology. The GVH's proposal protects both Hungarian consumers and Hungarian producers, as the revision may not only help reduce inflation but also strengthen the competitiveness of Hungarian dairy processors.

This finding of the GVH is supported by a review of certain elements of the price forecast and its practical operation, as well as by market developments confirmed by the calculations and analyses carried out in the sector inquiry, which show that the producer price of raw milk in Hungary has become disconnected from production costs from the second half of 2021, has increased more steeply than production costs and has also increased significantly in an international comparison. Given that the cost of raw milk used accounts for approximately 70% of the production costs of dairy product manufacturers (i.e., processors), this price increase is also reflected in the ex-factory prices charged by processors. These higher ex-factory prices have in turn led to higher consumer prices, as the price analyses carried out in the sector inquiry

generally show that consumer prices at retail level have closely followed the evolution of procurement prices.

2. Food price cap

Based on the data received by the GVH, it can be seen that in 2019, 2020 and 2021, retailers achieved a total profits of nearly HUF 100 billion in the food and daily consumer goods market, which, however, corresponded to only 1.3% of their turnover. In 2022, the profitability of the sector decreased significantly, turning negative, mainly due to the market distorting effect of price caps and significant cost increases. This was despite the evidence in the GVH's possession and the price analyses carried out showing that retailers were able to realise higher margins in HUF for some dairy products in 2022 (not affected by the price cap) in order to reduce their losses from price caps. Evidence seized during the on-site investigations suggests a business practice whereby some retailers sought to compensate for their losses by increasing margins on products not affected by the government-mandated price cap.

However, there is considerable variation between retailers, with some smaller franchised retailers managing to increase their profits despite the price caps. Given that the price caps are temporary government measures with a social policy objective, it is not for the GVH to assess their effects beyond their impact on competition. Given that the price caps were lifted as of 1 August 2023, it is expected that the market will stabilise again and competitive conditions will be restored.

The GVH's investigation confirmed that retailers sought to reduce their losses due to the temporary introduction of price caps on the prices of certain food products, which were introduced for social policy purposes, and that therefore their margins in HUF increased for certain products not affected by the price caps. However, the GVH's investigation only looked at the price margins of seven specific products, while the retail sector operates with tens of thousands of items and aggregated financial statements show a significant reduction in profits for most retailers in 2022.

3. Development and operation of an online price monitoring system

Based on the findings of the accelerated sector inquiry and the experience of some EU Member States, the President of the GVH has proposed to the Government the creation of an online price monitoring database and application to monitor consumer prices of food products. The price monitoring system is available on the GVH website (<https://arfigvelo.gvh.hu/>) from 1 July 2023.

In the GVH's view, this type of development could increase competition through transparency and better comparability of retail prices, which could have a long-term moderating effect on prices and increase (consumer) awareness. International experience gathered in the course of the sector inquiry confirms this expectation.

The design of the price monitoring system was based on the results of consumer research and analysis of domestic and foreign examples to ensure that the system is able to meet the needs of a wide range of potential users.

4. Pricing and promotion of plant-based drinks

The GVH's experts reviewed the price trends for plant-based drinks (almond drink, rice drink, oat drink) and soy yoghurts, as well as the pricing practices of the various players in the supply chain. The results of the analysis show that the import price of these products barely increased between 2019 and 2022, but that the sales prices of domestic distributors, and thus their margins, started to increase from autumn 2022. This is presumably linked to the increase in the price of dairy products as close substitutes, which in turn is a negative inflationary trend.

Another important finding, which is of concern to many, is that the retail margins and VAT rates for plant-based drinks and soy yoghurts are higher than for related dairy products, which means a significant additional burden for vulnerable consumers with various food allergies (e.g., lactose and casein intolerances) and environmentally conscious consumers. Lactose and milk allergies are very common food allergies, affecting up to 35% of the Hungarian population. In addition, environmentally conscious consumption is becoming increasingly important among domestic consumers, especially the younger generation. The GVH proposes to use trade policy instruments to improve the situation of the consumers concerned and to develop the domestic production capacity of the product range.

5. Promoting sustainable packaging

The GVH proposes to encourage domestic dairy processors, as far as practicable, to sell dairy products (mainly milk, cream and yoghurt) in recyclable or environmentally friendly innovative packaging.

Based on the cost analyses carried out in the accelerated sector inquiry and the statements of several market players (processors), it can be concluded that packaging materials have become significantly more expensive in the recent period. In view of this and from a sustainability point of view, it would be beneficial to encourage the sale of suitable dairy products in returnable packaging. And the soon-to-be introduced Extended Producer Responsibility (EPR) system in Hungary makes it worthwhile for processors to turn to innovative packaging methods that are less harmful to the environment.

6. Continuous actions by the Hungarian Competition Authority

The national competition authority will continue to pay particular attention to the retail sector in order to increase competition and reduce prices.

For several of the products under review, the increase in retail gross margin in HUF was higher than the increase in costs per product, so the average profit realised by retailers on the product increased significantly by 2022 compared to 2019, 2020 and 2021. However, this was not the reason for the very significant price increase of the product in question, as the retailers' profit was only a negligible part of the gross consumer price. In the case of Trappist cheese, for example, the average profit for retailers was only 6.3% of the gross consumer price, while the consumer price increased by 161% from 2021 to 2022. While the average consumer price of a kg of Trappist cheese for the retailers surveyed was 2,899 HUF in 2022, only 183 HUF of this remained as profit for retailers, and 2,716 HUF was incurred as a cost or tax.

The same can be said for taxes built into the gross margin. Again, it is not the taxes built into the gross margin that have caused the very significant increase in consumer prices for the products under review. On average, taxes paid by retailers accounted for HUF 12.4 of the average consumer price of a kg of Trappists cheese (excluding VAT) for the retailers surveyed, which is only 0.4% of the average consumer price. However, there are significant differences between retailers.

However, encouraging retail competition is of paramount importance as it can have a positive impact on the whole supply chain. Retailers can influence the lower levels of the supply chain through their purchasing negotiations, as confirmed by the price transmission analysis. Moreover, increased competition increases corporate efficiency and helps to mitigate higher prices. The GVH aims to ensure that these benefits are felt as much as possible by Hungarian consumers and will continue to pay particular attention to the retail sector and consumer price analysis.

The increased attention of the competition authorities is further strengthened by the fact that the significant price reductions experienced in the period under review, especially in the milk and dairy products sector covered by the analysis, may also suggest – among many other external factors – that the targeted investigation and official procedures of the GVH may have contributed to the reduction of inflationary pressures and the decline in consumer prices.

Glossary

ESL milk: ESL (Extended Shelf Life) milks are heat treated at temperatures between 100 and 135°C, which means they can have a shelf life of up to 20–28 days.

Eutrophication: human activity causes phosphorus and nitrogen to accumulate in the water, accelerating the algae formation, pollution and siltation of natural waters.

Gross margin: the difference between the retail price of the good and its purchase cost. The gross margin covers all the retailer's operating costs not related to purchase (wage costs, rent, marketing costs, interest on loans, etc.). The amount remaining over and above the purchase and operating costs reflects the profit element of the gross margin.¹

Homogenisation: a physical process whereby milk is forced through a small gap under high pressure, breaking up the milk fat and preventing it from clumping (skimming).

N: number of enterprises answering for requests for information.

Profit margin: the percentage of gross margin over retail price is also called the retail profit margin.²

UHT milk: Ultra High Temperature Treated Technology (UHT) milk is treated at 136–142°C and then packed in special packaging under contamination-free conditions. They have a shelf life of up to 90 days and do not require refrigeration until they are opened.

¹ Agárdi, Irma (2017): *Kereskedelmi marketing és menedzsment [Commercial marketing and management]*. Budapest, Akadémiai Kiadó.

² Agárdi, Irma (2017): *Kereskedelmi marketing és menedzsment [Commercial marketing and management]*. Budapest, Akadémiai Kiadó.

I. Conditions calling for the initiation of sector inquiry, objective of the inquiry

In 2022, the prices of different food items significantly rose across Hungary and other EU Member States. Notably, the rise in consumer prices of milk and dairy products in Hungary was striking. This has greatly influenced the overall inflation, given the substantial consumption of milk and dairy products in the domestic consumer basket.

At the beginning of 2022, the Government, with a view to mitigating the social impact of these price increases, issued a decree setting maximum official prices for the gross retail prices of some specific food products.³ This measure has been in force since 1 February 2022 and, under the current provisions of the relevant government decree, the official maximum prices will apply until 1 August 2023 for certain food items, including UHT milk with a fat content of 2.8%. However, the prices of milk and dairy products not subject to official price caps increased significantly in the second half of 2022.

If a sector experiences significant, sudden price changes, there can be a number of reasons. Most often it is due to some kind of external shock. Such shocks can be demand shocks (e.g., surges in demand due to state subsidies) and/or supply shocks (e.g., supply chain distortions, *force majeure* situations). However, significant price increases can also be caused by unfair market practices of market participants and thus distortions of fair competition. Competition authorities around the world aim to prevent and eliminate such behaviour.

The purpose of this sector inquiry is to investigate to what extent the behaviour of market players at each level of the supply chain may have contributed to the increase in milk and dairy product prices, whether anti-competitive practices can be identified in this context, and what other circumstances and measures may have affected market conditions and caused distortions of competition.

If the GVH detects any circumstances during its sector inquiry that indicate that the increase in milk and dairy product prices is caused by anti-competitive market practices, it will take the necessary steps to remedy the situation within its statutory powers. If, on the basis of the findings, the Authority identifies phenomena or market anomalies which may be the cause of or contribute to the increase in the price of milk and dairy products, but which are beyond the scope of the GVH's powers to address, it will highlight them in its report concluding the sector inquiry and make recommendations in relation to them.

From a competition law point of view, the food industry is a very broad and heterogeneous sector, with many relevant markets. The framework for any competition policy analysis is defined by the relevant market, which is essentially the arena of competition. To understand the causes of specific market problems – in this case, significant price rises – it is necessary to look in more depth at a particular product type and its supply chain. It cannot be taken for granted, for example, that prices for preserved foods change for exactly the same reasons as prices for

³ Government Decree No 6/2022 (I. 14.) on the different application of Act LXXXVII of 1990 on the fixing of prices during an emergency.

milk and dairy products. It is therefore appropriate to look at food product price increases not in a general competitive sector analysis, but in studies focusing on narrower product markets.

In line with the above, the market trends and consumer signals observed by the GVH were first examined in the domestic market for milk and dairy products from January 2023, followed by the market for preserved food (essentially frozen and canned vegetables and fruits) from February 2023.

II. The accelerated sector inquiry as a legal instrument; methodology of the inquiry, summary of the different steps of the inquiry

Purpose and general rules for sector inquiries

In the Hungarian legal system, the sector inquiry in the competence of the GVH is a fairly old legal instrument existing since 1 February 2001. According to the law which introduced this type of procedure, “this method provides the basis for the market monitoring work carried out by the GVH with adequate data.”⁴ Section 43/D(1) of Act LVII of 1996 on the Prohibition of Unfair Market Practices and Restrictions of Competition (hereinafter: Competition Act), which has been amended several times since then and is currently in force, stipulates that the GVH may, if price movements or other market circumstances indicate that competition in a market belonging to a given sector is distorted or restricted, initiate a sector inquiry in order to investigate and assess market developments.

According to the literature, the purpose of a sector inquiry is to identify the causes of a competition problem in a relatively well-defined market or sector. The GVH also has certain public powers at its disposal. In the case of a sector inquiry, it cannot be established with certainty whether the distortion or restriction of competition is due to the conduct of particular undertakings, nor can specific infringing conduct be presumed to such an extent that it would be possible to open competition proceedings. In such cases, however, it may be necessary for the GVH to have at its disposal a means of mapping the functioning of the relevant market, its structure and its relations, by requiring undertakings operating in the sector to provide information.⁵

According to the Competition Act, if the sector inquiry reveals a market failure that cannot be remedied or cannot be fully remedied through a competition procedure, the GVH has three additional tools at its disposal: (i) inform the competent committee of the National Assembly or the minister or authority with the relevant duties and powers, (ii) issue a non-binding public recommendation to market participants on best practices, including recommended market conduct, to maintain and promote fair and effective competition and to provide adequate information to business customers, or (iii) if necessary, initiate the creation or amendment of legislation at the competent body.

Based on the legal institution of sector inquiry, which is in line with the above provisions, the Government extended the powers of the GVH in July 2021 in order to provide the authority with more efficient and faster tools to deal with competition problems requiring urgent intervention.

⁴ Explanatory memorandum to Article 20 of Act CXXXVIII of 2000 amending Act LVII of 1996 on the Prohibition of Unfair Market Practices and Restrictions of Competition.

⁵ Commentary to Act LVII of 1996 on the Prohibition of Unfair Market Practices and Restriction of Competition, p. 445. (Budapest, 2014; Edited by: Miklós Juhász, Dorina Ruzshtiné Juhász, András Tóth)

Special rules for accelerated sector inquiries

Issue 130 of 8 July 2021 of the Hungarian Official Gazette published the Government Decree⁶ – in the form of a government decree as permitted by the rules of emergency legislation – which allowed the GVH to make certain derogations from the general rules on sector inquiries described above, for the purpose of urgent intervention, by introducing a new legal institution called the accelerated sector inquiry.

The provisions on the accelerated sector inquiry were incorporated into the Act on Certain Regulatory Issues Related to Emergency Situations of 2021 (Act CXXX of 2021)⁷ with effect from 1 June 2022. The amendment did not change the procedure for conducting an accelerated sector inquiry laid down in the Government Decree, but merely clarified it in a few places by incorporating practical experience. In view of the above, the rules for the accelerated sector inquiry under the Competition Act are as follows.

The opening of an accelerated sector inquiry is subject to two conditions: (i) there must be a reasonable presumption that competition in a given sector is distorted or restricted, based on the characteristics, the totality of its specific features or its structural organisation, and (ii) urgent intervention is warranted to identify and address these market problems.⁸ It can therefore be seen that – in the light of Art. 43/D (1) of the Competition Act – the justification for urgent intervention appears as an additional condition.

As a main rule, the general rules of the Competition Act on sector inquiries have to be applied in accelerated sector inquiries, too, but with some important differences and additions because of the objective to use the legal instrument in urgent cases. The draft report on the inquiry has to be prepared in one month, and this deadline can be extended twice, by one month on each occasion. The legislator added an important tool to the instruments available to the GVH and increased its efficiency by specifying that the rules of the accelerated sector inquiry – as opposed to the rules of ‘normal’ sector inquiries – allow dawn raids by the authority in the possession of a preliminary court warrant, if the GVH indicates its suspicion in its request that the evidence related to the objective and the subject of the accelerated sector inquiry may be reasonably found at the place specified in the motion. Based on the Competition Act, the Metropolitan Court of Budapest has to make a decision about this request within 72 hours. The acceleration of the procedure is facilitated by another provision, too, namely that undertakings operating in the sector have only eight days to make comments on the draft report published after the inquiry (as opposed to at least 30 days allowed in ‘normal’ sector inquiries).

Methodology of the inquiry, summary of each step of the inquiry

With the opening of the present accelerated sector inquiry, the GVH made use of the new opportunities provided by the Government Decree and the amendment to the Competition Act for the sixth time, and as a result, on 20 January 2023, it opened an accelerated sector inquiry

⁶ Government Decree No 406/2021 (VII. 8.) on the different application of Act LVII of 1996 on the prohibition of unfair market practices and restrictions on competition. Entry into force: 9 July 2021. Effective until 31 May 2022.

⁷ Act CXXX of 2021 on Certain Regulatory Issues Related to Emergency Situations, §§ 60-63

⁸ Tpv. Paragraph (1a) of Article 43/D § (1a)

into the domestic market for milk and dairy products with the aim of identifying and assessing the processes taking place on the market. This was a consequence of the fact that market signals and information received by the GVH showed that prices of milk and dairy products among food products have recently increased particularly strongly and that the supply position of domestic processors in the dairy sector has been weakening.

The decision to open an investigation was published by means of a notice on the GVH's website and posted at the GVH's headquarters at 8.00 a.m. on 20 January 2023. The investigators then carried out a series of coordinated dawn raids in different areas of Hungary, including procedural actions at dairy processing plants and food retail chains. During the dawn raids, the undertakings concerned in the sector were asked to provide information in two ways:

- on the one hand, they provided information in response to the investigators' questions concerning the structure of the market concerned, the players, the supply chain and price developments;
- on the other hand, they provided various documents and figures on the sales turnover and volume of specific products and the turnover allocated to trading partners.

The investigators of the GVH also obtained other documentary evidence from each of the companies on the relevant product markets.

In parallel to the dawn raids, the GVH also obliged other market players to provide similar data in order to collect more data, issuing more than 140 data request for information in total.

Prior to the field research and data requests, the investigators selected the most relevant types of milk and dairy products based on the databases of the Hungarian Central Statistical Office (HSCO) and the Institute of Agricultural Economics Nonprofit Kft. (AKI), as well as other information already available to them, and collected detailed data from market actors. For the enterprises at each level of the supply chain, data collection focused on the following:

- (i) in the case of dairy farmers, the GVH was primarily interested in the costs and their levels incurred during the production of raw milk from cows, and the average price and volume of the products they sold;
- (ii) for dairy processors, the focus was on the inputs and costs involved in the processing of milk and dairy products, and the average price and volume of the products they sold;
- (iii) at the retail level, the focus was on the analysis of purchase and consumer price levels and margins.

In addition, the GVH sent several requests for information to the Milk Interbranch Organisation and Dairy Board, in which it investigated in detail the organisation's involvement in the sector.

III. The product scope of the accelerated sector inquiry

General characteristics of the domestic dairy market, categorisation of dairy products

Dairy products in the traditional sense are made from cow's milk and its by-products (e.g., buttermilk, whey) with or without fermentation. Some products (e.g., yoghurts, milk-based ice creams, milk powders, cream) are modified by the addition of additives to alter their colour and taste.⁹

Milk production is based on the dairy herd, i.e., the cows from whom the raw milk is milked. Domestic milk yields are considered high compared to EU statistics, but the milk fat and protein content of milk is below the EU average. The technological background of milk production has been modernised in recent years, but the life expectancy of cows is low in Hungary, they only reach a small part of their natural life span before they are sent to slaughter.

In 2019, Hungary accounted for 1.1% of EU milk production. In Hungary, larger farms are responsible for a significant share of milk production, with an average number of around 442 animals per farm in 2021. The average monthly milk yield per cow increased from 1293 to 1679 kilograms between 2011 and 2021, representing a 30% increase in yield.¹⁰

According to information obtained during the accelerated sector inquiry, Hungarian dairy processors typically process domestic raw material. Currently, domestic milk production is around 2 billion litres per year¹¹ and the dairy industry is basically geared to supply the Hungarian market. A part of the raw milk produced (about 10%) is exported abroad,¹² but a significant amount of finished products is imported (e.g., 80% of fruit yoghurts are imported). However, it should be added that domestic dairy processors also export dairy products abroad, milk, cheese, cottage cheese and whey in highest quantities.¹³ In Hungary, the per capita consumption of dairy products is 185 kg/person/year, i.e., about half a litre per person per day.

Following the categorisation of the Hungarian Food Codex (Codex Alimentarius Hungaricus),¹⁴ the main characteristics of each of the dairy product categories relevant to the procedure are presented below. The sales volume evolution of a typical product of each product category is shown in Figure 1. It shows that between 2019 and 2022, the volume sold at retail level was stable for most of the main product categories studied, but in 2022, there is a 10–20% decrease for several products compared to the previous period. In particular, butter sales decreased steadily between 2020 and 2022, reaching 40% of the volume at the beginning of 2019.

⁹ https://portal.nebih.gov.hu/documents/10182/21392/Fontos_tudnivalok_a_tejrol_es_a_tejtermekerkrol.pdf/68b6fcc2-d848-4f9f-813d-130a4622e9f6 (letöltve: 2023. április 14.)

¹⁰ <https://agroforum.hu/szakcikkek/agrargazdasag-szakcikkek/tejtermeles-es-tejipar-nem-bizakodhatunk-csak-a-tamogatasban/> (downloaded 14 April 2023)

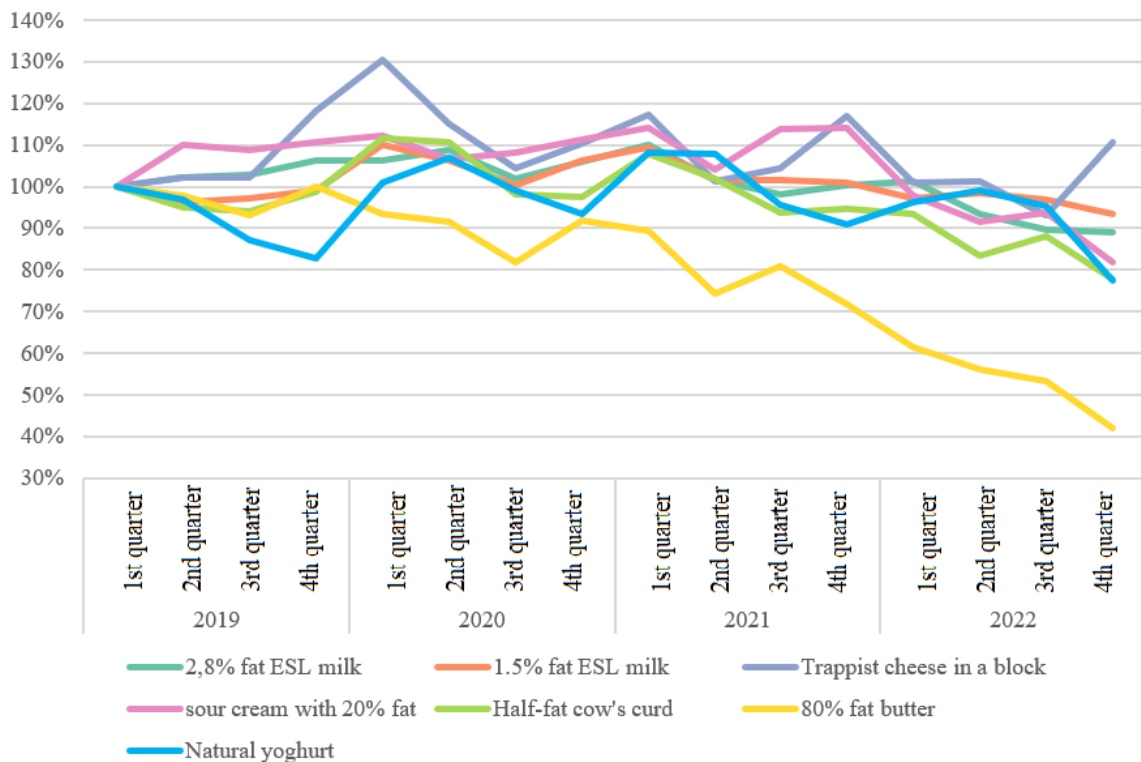
¹¹ https://www.ksh.hu/stadat_files/mez/hu/mez0034.html (downloaded 15 June 2023)

¹² <https://www.aki.gov.hu/piaci-arinformacios-rendszer/#pair> (downloaded 15 June 2023)

¹³ stainfo.ksh.hu/Stainfo/QueryServlet?openLink=b88dacca523d8d92d4757f0d8cbdf0e79cb7bb1f9fa8d00c8ce4011026ebe03 (downloaded 14 April 2023)

¹⁴ <https://elelmszerlanc.kormany.hu/magyar-elelmszerkonyv> (downloaded 14 April 2023)

Figure 1. Evolution of sales volumes of the dairy products investigated (Q1 2019 = 100%)



Note: N = 16

Source: own calculation based on corporate data

Raw milk

Raw milk is the product obtained from one or more cows, sheep or goats by regular full milking, not heated above 40°C or treated in an equivalent manner and from which nothing has been removed or added. Raw milk is required as a raw material for the production of all dairy products covered by the accelerated sector inquiry. We note that the basic (natural) purpose of raw milk is to feed and promote the growth of the calf.

Raw milk for direct consumption is offered without heat treatment. Raw milk used for industrial processing is used to produce heat-treated consumer milk products or milk-based products. Only raw milk with the characteristics required by the Hungarian Food Codex and the relevant legislation may be used.

Raw milk may be produced and marketed by dairy farms that are registered and regularly inspected by the competent veterinary authority. Only healthy, properly fed cows, sheep or goats may produce milk of suitable quality. Proper hygiene during milking and milk treatment must be ensured. The chilling of raw milk on the dairy farm must begin immediately after the milk is expressed and must be cooled to between 6°C and 4°C within two hours. If the milk is sold or transported to a milk collection or processing plant within two hours of milking, cooling is not necessary. The raw milk must be stored in containers made of materials approved for hygiene purposes and in a satisfactory state of hygiene.

Heat-treated milk products

Heat-treated milk products and milk preparations are made from raw farm milk by purification, fat adjustment, homogenisation, possibly enrichment with milk proteins, mineral salts, vitamins, lactose reduction, flavouring and appropriate heat treatment.

Several classifications are possible for these products. According to the origin of the milk used, there can be cow's milk, goat's milk, etc. According to the fat content, there can be skimmed, low-fat, semi-skimmed and fat (full-fat) consumer milk, milk products. According to the type of heat treatment, we can talk about pasteurised, high-temperature pasteurised or heat-treated, ultra-high-temperature treated (UHT) and sterilised milk, milk products. These products can be either milk or flavoured milk products.

Fermented dairy products

The product group includes products made from heat-treated milk and other ingredients used, with the addition of special microbial cultures, acidification and coagulation.

These products may be live or non-live, natural or flavoured milk and cream products such as kefir and yoghurt.

Cheese

Cheeses can be ripened cheese with rennet coagulation (e.g., Trappist cheese), acid and mixed coagulation (e.g., cottage cheese), cheese preparations (e.g., mozzarella), bulk cheeses and cheese preparations (e.g., triangle cheese).

Ripened cheeses are extra hard, hard, semi-hard or soft. By adding appropriate flavourings or smoking, flavoured and smoked, smoked with smoke solution and smoke-flavoured varieties can be produced.

Acid and mixed coagulated cheeses can be divided into three groups: fresh cheeses (cottage cheese, cream cheeses/unripened fresh cheeses), cottage cheese, whey cheese.

Bulk cheese and bulk cheese preparations can be divided into three groups: named bulk cheese, bulk cheese, bulk cheese preparation. These products may be made with a cutting or spreading agent.

Cheese products are generally spreadable products, which can be fresh, with a shorter shelf-life, sometimes live-flour and long-lasting, heat-treated versions. They can be divided into three categories: natural cheese products, flavoured cheese products and dessert cheese products.

Creams and milk preparations

The product group includes milk products obtained from milk by skimming or other concentration processes, enriched in fat and other ingredients, heat-treated and cooled, homogenised if necessary, with a fat content of at least 10% (w/w), manufactured in cartons or aerosols. These products may be cream or flavoured cream preparations manufactured using cream with the addition of flavouring additives.

Butter and butter spread

The products covered are made exclusively from milk and/or milk products suitable for their manufacture, are solid and spreadable at 20°C, contain between 10% (w/w) and 90% (w/w) milk fat, and contain at least two-thirds milk fat in edible salt-free solids.

The products fall into four groups: butter, reduced and low-fat butters, butter preparations, flavoured butter preparations.

The products can be manufactured with or without the addition of table salt.¹⁵

General production process for dairy products

As described above, all dairy products are based on raw cow's milk. However, in order to understand what is happening in the domestic dairy market, to be able to outline the potential competition problems in the sector and the reasons for price increases, we also need to have a more detailed knowledge of the production process of each dairy product. The GVH therefore sought to obtain information on the various steps and components of the production process during the sector inquiry.

For most dairy products, the general process of milk processing can be described as a chain of the following steps.

- **Milk delivery:** raw milk is typically delivered from dairy farmers to dairy processing plants by external transport companies.
- **Processing:** the milk received is separated into cream and skimmed milk.
- **Fat adjustment:** it is necessary to adjust the fat content of the milk according to the products to be produced.
- **Homogenisation:** this reduces the bulking of milk and makes the curd structure of fermented milk and milk products more stable.
- **Heat treatment:** this kills microorganisms.
- **Production and packaging:** ESL milk and UHT milk are packaged in special quality cartons, cream, yoghurt, kefir and butter products are packaged in plastic cups, butter, cheese and cottage cheese are packaged in foil, milk powder and whey powder are packaged in bags.
- **Product storage:** after production, dairy products are stored in warehouses depending on the type of product, with fresh products (e.g., ESL milk, sour cream, kefir, yoghurt, butter, butter preparations) stored in refrigerated warehouses at 4-5°C, and long-life products (e.g., UHT milk, cream, flavoured drinks, milk powder, whey powder) stored in dry, humidity-free warehouses.
- **Delivery:** transport to customers, typically by road, using transport companies.

The individual processing process for each type of dairy product is as follows.

- **Production of heat-treated milk:**
The raw milk is cooled, skimmed and the fat content is adjusted to the product by mixing whole milk, skimmed milk and cream in the appropriate proportions. For the production

¹⁵ <https://elelmiszerlanc.kormany.hu/magyar-elelmiszerkonyv> (downloaded 14 April 2023)

of drinking milk, the milk is heated to 72-76°C and kept at this temperature for 15-40 seconds. For high heat pasteurisation, the milk is heated to 80-98°C and kept at this temperature for 5-180 seconds.

The process used for heat treatment of milk involves heating the milk, which is predominantly filled into co-packages, to 110-120°C in a steriliser and then cooling it. In the UHT process, the milk is heated to 136-142°C in a continuous stream and is kept at this temperature for 3-4 seconds.

- Sour cream production

The raw material for sour cream is cream, which has a fat content of between 12% and 30%. After the fat content has been adjusted, the cream is heated to 75°C and homogenised at a pressure of 100-160 bar. If a solid product is to be obtained, coagulation in the glass is used. After coagulation, the product is cooled rapidly once the desired degree of acidity has been reached. During cold storage, the flavouring substances are formed in the product.

- Yoghurt and kefir production

The milk used can be whole, semi-skimmed or skimmed, depending on the product to be produced. The milk is usually homogenised at 150-200 bar before coagulation. Stabilisers and restoratives are used to improve the consistency of the product. In order to improve the quality and taste of the product, it is possible to enrich the raw milk by evaporation or by adding milk powder. Heat pasteurisation destroys undesirable bacteria. Yoghurt or kefir culture is used for inoculation. Yoghurt is fermented by heat-loving lactic acid bacteria. Coagulation takes only a few hours at 42-45°C, followed by rapid cooling at 6-10°C for 6-24 hours.

- Cream production

Cream is made from milk by skimming or other concentration processes. The cream with the set fat content is heat treated and cooled, and the cream for whipping is matured for 12 to 14 hours, which makes it suitable for whipping. After filling and packaging, the product is stored refrigerated or, in the case of ultra-pasteurised products, at room temperature.

- Butter production

Butter is produced by a continuous or batch process. First, the cream is prepared, heat treated, aerated, cooled, then matured, spatulated, churned, pH adjusted at post-curing, packaged and stored.

- Cottage cheese production

The milk is pasteurised and then cooled to the inoculation temperature. Lactic acid bacteria are added to the milk and then pre-matured in tanks or silos. It is then coagulated in coagulation vats or curdling tanks. Processing consists of chopping, mixing, resting and then heating the curd. In the case of curd with a lumpy consistency, once the desired consistency has been reached, the curd is cooled by circulating the whey and then separated from the whey.

- Cheese production

To reduce the bacterial content of the milk and to adjust the fat content to the right level, the germs in the cheese milk are reduced. The milk is then coagulated, typically by the

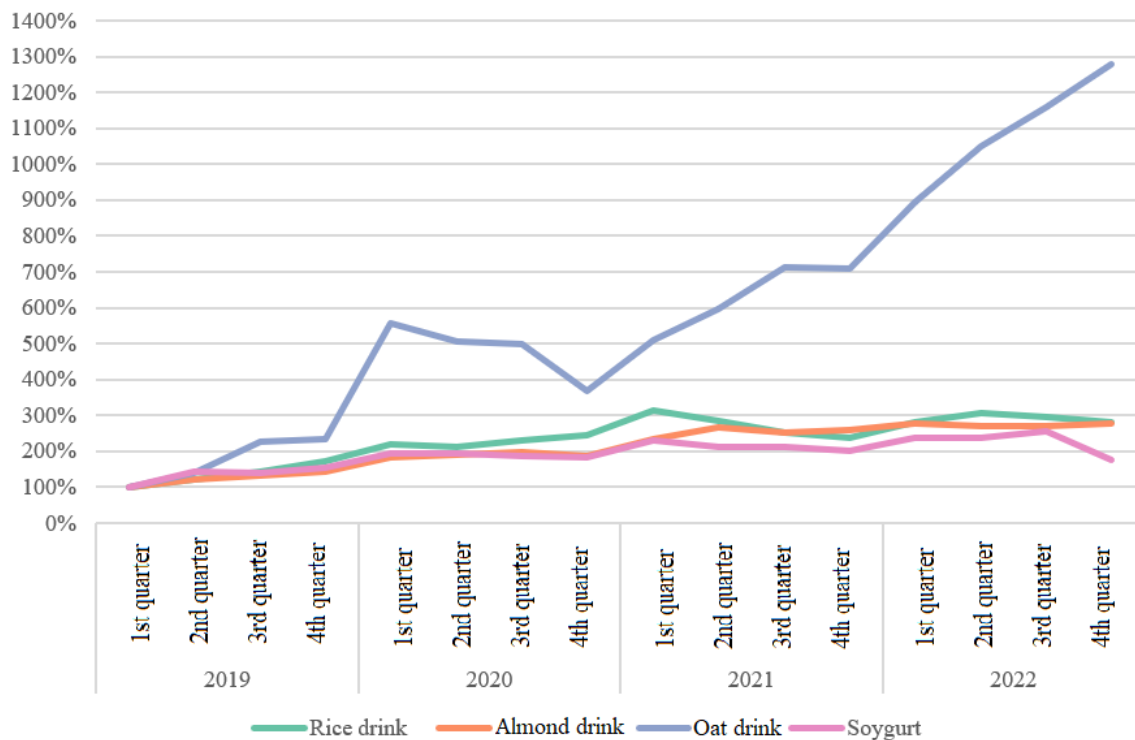
addition of a rennin enzyme (e.g., rennin) from the calves' stomachs. The curdling time is longer for soft cheeses and shorter for hard cheeses. This is followed by the curdling process, during which the curd is chopped, pre-pressed, reheated and post-pressed. The water content of the curd is reduced and the curd is then acidified. The next step is the pre-pressing and shaping of the curd. The curd is pressed into moulds according to the nature of the cheese; soft cheeses are pressed with minimum pressure and hard cheeses with higher pressure. The cheeses are then placed in salting vats for a short or long period of time, and then packaged and matured. During the ripening process, the cheese develops its characteristic properties such as taste, smell and colour.

Consumer substitutability of the dairy products investigated

The accelerated sector inquiry focused on various cow's milk based products. However, given that the GVH necessarily conducts its analysis through a competition policy lens, in the present proceeding, in the light of current market trends, the investigation also focused on plant-based milk alternatives, as they are potential substitutes for dairy products from consumer point of view. The market research submitted by the market players shows that this substitution is in fact taking place and that dairy companies are addressing and responding in different ways to the competitive pressure from plant-based products. The existence of substitution is further confirmed by academic research (e.g., Slade and Markevych, 2023).

A very wide range of plant-based products is already available in Hungary, with plant-based alternatives for virtually all cow's milk based products available on the market. However, the most important of these products in terms of both sales volume and market penetration are plant-based drinks and various soy-based yoghurts, and therefore the cost and price trends of these products were analysed in the accelerated sector inquiry. The raw materials for plant-based drinks can be very diverse, and can be made from different cereals (rice, oats, barley), soya, seeds (sunflower seeds, sesame seeds) or nuts (almonds, walnuts, coconut).

Figure 2. Evolution of sales volumes of plant-based drinks and soy yoghurts (Q1 2019 = 100%)



Note: N = 5

Source: own calculation based on corporate data

Dynamically growing demand for plant-based drinks and soy yoghurts (Figure 2) can be attributed to several factors.¹⁶ Firstly, recent international research suggests that high milk consumption can have various health risks,¹⁷ and there is a growing number of lactose and casein intolerant people who cannot consume dairy products of animal origin. The most common food allergy in Hungary is milk allergy,¹⁸ which can affect up to 35% of the population.¹⁹ However, according to the latest HCSO survey, only a small proportion of the population, 4%, currently follow such a diet.²⁰ This significant difference is probably due to a lack of knowledge, higher product prices or lack of diagnosis, which is expected to lead to a steady increase in the number and proportion of people following a dairy-free diet in the future.

On the other hand, the environmental indicators of plant-based milk alternatives (land use, water use, carbon emissions, contribution to eutrophication) are much more favourable than those of cow's milk (Figure 3). Of course, they are not emission-free either, since they also have some environmental impact from the production and logistics of these products, but significantly less than milk of animal origin. In relation to the previous two points, it should be

¹⁶ <https://www.agroinform.hu/kornyezetvedelem/novenyi-ital-tejhelyettesito-tehentej-kornyezeti-terheles-58720-001> (downloaded 14 April 2023)

¹⁷ For more details, see the Harvard University School of Public Health summary: <https://www.hsph.harvard.edu/nutritionsource/milk/> (downloaded 14 April 2023)

¹⁸ <https://laktozerzekeny.hu/a-tejfeherje-allergia-tunetei/> (downloaded 14 April 2023)

¹⁹ <https://laktozerzekeny.hu/laktozintolerancia-europaban/> (downloaded 14 April 2023)

²⁰ https://www.ksh.hu/docs/hun/xftp/idoszaki/pdf/egeszsegugyi_helyzetkep_2019.pdf (downloaded 14 April 2023)

noted that the average domestic consumption of dairy products is double as the EAT-Lancet dietary recommendation, which takes into account health and sustainability considerations.²¹

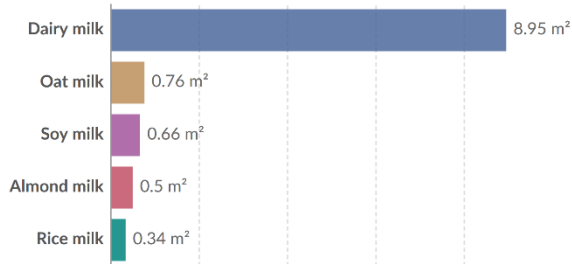
Figure 3. Comparison of environmental impacts of cow’s milk and various plant-based drinks (per litre of product)

Environmental footprints of dairy and plant-based milks

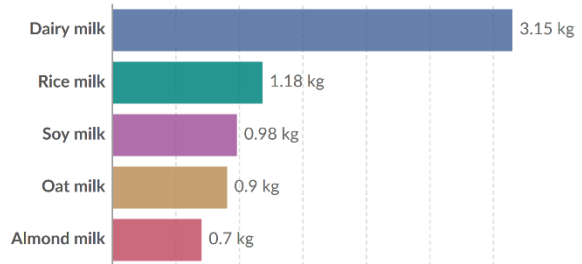


Impacts are measured per liter of milk. These are based on a meta-analysis of food system impact studies across the supply chain which includes land use change, on-farm production, processing, transport, and packaging.

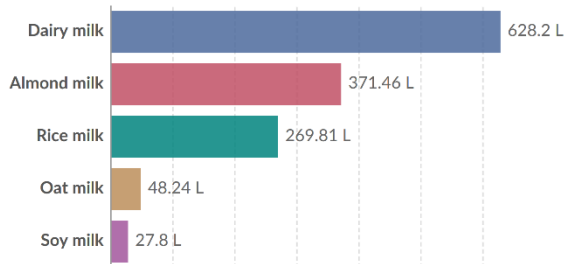
Land use



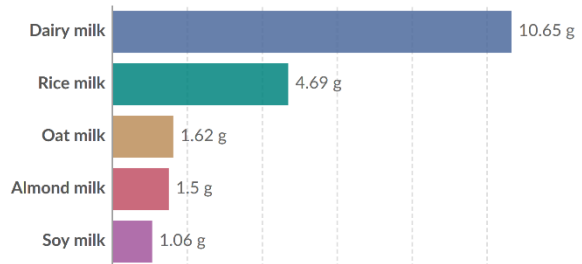
Greenhouse gas emissions



Freshwater use



Eutrophication



Data source: Joseph Poore and Thomas Nemecek (2018).

[OurWorldInData.org/environmental-impacts-of-food](https://ourworldindata.org/environmental-impacts-of-food) | CC BY

Source: <https://ourworldindata.org/environmental-impact-milks> (downloaded 14 April 2023)

Thirdly, animal welfare concerns are becoming increasingly important to European and domestic consumers, which are challenging certain established dairy practices,²² and have led some consumers to switch to alternative plant-based products.

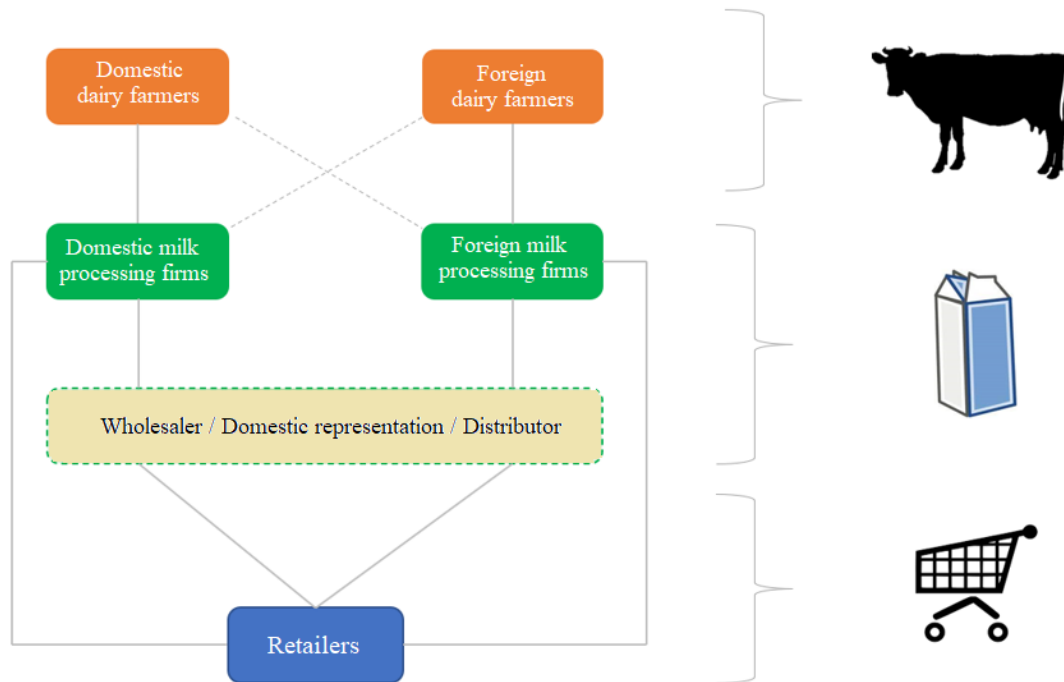
²¹ [https://eatforum.org/content/uploads/2019/07/EAT-Lancet Commission Summary Report.pdf](https://eatforum.org/content/uploads/2019/07/EAT-Lancet_Commission_Summary_Report.pdf) (downloaded 15 June 2023)

²² For more on these, see the book by Peter Singer, Professor at Princeton University, titled *Animal Liberation Now: The Definitive Classic Renewed* (Harper Perennial, 2023).

IV. Introduction of the supply chain

The analysis of the different levels of the supply chain is dealt with in the following chapters of this report. The actors in the supply chain are summarised and shown in Figure 4.

Figure 4. Typical supply chain for dairy products



Source: own editing based on data supplied

The above figure shows that the first level of the supply chain in Hungary is made up of dairy enterprises. These companies deliver the raw milk milked from cows to processing plants. The processing plants handle the raw material received in the appropriate way, which is subsequently used to produce various dairy products using different methods. These products are then sorted and packaged by the processors according to the desired presentation. Retailers usually purchase the manufactured and packaged dairy products directly from processors or importers. Retailers are the main channels through which these products reach the final consumer.

According to the data submitted to the GVH, the role of domestic wholesalers and distributors in the domestic dairy supply chain has declined sharply in recent years, and they are only present in a minority of cases. For this reason, the GVH did not assess the role of distributors in the accelerated sector inquiry, as their influence on price setting and thus on price increases could only be limited in the light of this.

There are also some dairy products in the domestic supply that have a different supply chain from the ones presented above. These dairy products are typically produced in a foreign manufacturer's plant and are purchased by domestic retailers through the brand's domestic representation.

V. Raw milk production: dairy farms and cooperatives

A brief introduction of the domestic dairy farms

As already mentioned in the previous chapter of this report, the production of all dairy products requires – as a matter of course – a sufficient quantity of raw milk. Consequently, a closer examination of the dairy farmers at the first level of the dairy supply chain cannot be avoided, and the findings of this study are summarised below.

In the course of the present accelerated sector inquiry, the GVH sent request for information to more than two dozen dairy farms, which, on the basis of the available information, can be considered as significant market players. It should be noted that the total number of dairy farms currently operating in the country is much higher.²³

With regard to the activities of dairy farmers, the responses of the dairy farms surveyed show that these farms are often not only engaged in the breeding and rearing of dairy cattle, but also in the production of crops and cattle feed to complement their activities. These two activities can complement each other in the sense that the fodder produced can be used to feed livestock, other by-products of crop production can be used for littering, while the liquid waste from livestock farming can be used as a nutrient supplement in crop production.

However, according to the information obtained during the investigation, it is quite rare that a dairy enterprise is also involved in the processing of the raw milk produced, i.e., the production of finished products. Exceptions to this are groups or cooperatives operating at several levels of the supply chain and larger agricultural enterprises (e.g., Bonafarm Group, Alföldi Tej Kft.).

Dairy farms therefore produce mainly raw milk. The process of producing raw milk is divided into two parts. On the one hand, the production/procurement and management of feed is of paramount importance. On the other hand, the rearing of cows and their preparation for milk production (rearing, artificial insemination, calf rearing), followed by the continuous milking and finally, after 3-4 years, the removal of the cows from the dairy and their sending them to slaughter. During milking, as a key step, it is also of paramount importance to comply with hygiene standards, such as rules on clothing for milkers, hand and foot disinfection, and disinfection of animal udders. The majority of dairy farmers contacted during the survey milk their cows two to three times a day. An important stage in the raw milk production process is the chilling and storage of the raw milk, as only by properly implementing these measures can the quality of the raw milk delivered to the dairy processors be ensured.

Based on the data received, the main categories of inputs used by dairy farms can be divided into the following main categories: feed and feedingstuffs, drinking water, veterinary medicines and disinfectants, energy (electricity and natural gas), reproductive materials, machinery and parts, fuels and labour.

²³ The list of approved dairy farms is publicly available on the NFCSO website: <https://portal.nebih.gov.hu/-/elelmszer-uzemlistak> (downloaded 14 April 2023)

Of the inputs listed, feed is of paramount importance and weight. The information obtained during the accelerated sector inquiry shows that dairy farmers are often able to produce part of the feed required by their animals themselves. With a few exceptions, responding producers generally only source a small proportion of their feed from imports.

The majority of the other inputs are also typically sourced from domestic operators, based on the data obtained. Exceptions to this may include, for example, reproductive materials, which may be imported from the USA, and certain veterinary medicines, disinfectants, feed and feed supplements.

The customer base of milk-producing enterprises is typically milk-processing enterprises, which purchase the raw milk produced for the manufacture of finished products. A significant number of the producers contacted in the accelerated sector inquiry produce raw milk specifically for one major domestic processor, while others produce for several partners, domestic and/or foreign. It is less common for dairy farmers to produce raw milk exclusively for export, but such operators can be found among domestic farms.

A significant number of producers interviewed during the accelerated sector inquiry stated that they do not plan to increase capacity in the coming period, as they are making optimal use of their existing capacity. It is important to note that several dairy farmers cited the same factor as a reason for this, namely a shortage of feed due to a low and poor quality crop caused by the drought.

Cooperatives, producer groups

In Hungary, the operation of producer groups is regulated by the Decree 42/2015 (VII. 22.) FM on the recognition of producer groups. A producer group may be a cooperative established under Act X of 2006 on Cooperatives (hereinafter referred to as the Cooperatives Act) and carrying out activities under Section 22 (1) a) of the Cooperatives Act. A producer group is a cooperation of producers organised according to the same product or group of products, in which they voluntarily associate in order to strengthen their market position, for an activity that fits in with their basic agricultural or forestry activity carried out independently, by undertaking to comply with the rules laid down in the Regulation.²⁴

The cooperatives buy raw milk from their members on the basis of annually updated contracts and sell it to processors. Before buying raw milk, they estimate the expected production volume of their members and negotiate prices with processors. They provide their members with technical assistance and support in organising raw milk production and adjusting it to the quality and quantity demanded. They coordinate, organise and bring together their member producers in order to take advantage of the benefits of the joint marketing of the volume of products. In addition, they provide their members with modern production, marketing organisation and other specialist advice.

In Hungary, the following dairy co-operatives operate:

- Gazda-Tej Értékesítő Szövetkezet MAGYAR-TEJ Értékesítő és Beszerző Kft.
- TEJÉRT Tejértékesítő és Beszerző Kft.

²⁴ FM Decree 42/2015 (VII. 22.) on the recognition of producer groups

- Alföldi Tej Értékesítő és Beszerző Kft.
- Bihari Agroteam Mezőgazdasági Termékértékesítő és Szolgáltató Szövetkezet
- Bihari Tejértékesítő és Beszerző Mezőgazdasági Szövetkezet Keleti Régió Tejértékesítő és Beszerző Kft.
- Fino-Tej Beszerzési, Értékesítési és Szolgáltató Szövetkezet Dunamelléki Tejértékesítő, Beszerző és Szolgáltató Szövetkezet Völgységi Tej Szövetkezet

Costs and evolution of raw milk prices

One focus of the procedure was to provide the GVH with a comprehensive mapping of the development of purchasing costs and sales prices of companies operating at each level of the dairy supply chain in Hungary, within the limits of the available data. Therefore, in the context of the accelerated sector inquiry, the GVH requested data from undertakings at the producer level to analyse the costs of milk production and the producer price of raw milk.

The cost of producing raw milk is essentially linked to the cows, who are milked to produce raw milk and, therefore, the central task of the dairy farms is to take care of them. Based on the data received, the inputs used are quite heterogeneous, with some producers providing a breakdown by main cost elements and others providing a more detailed breakdown. Some dairy farms submitted to the GVH only the main inputs or inputs that had recently undergone significant price increases, while others provided information on almost all inputs used.

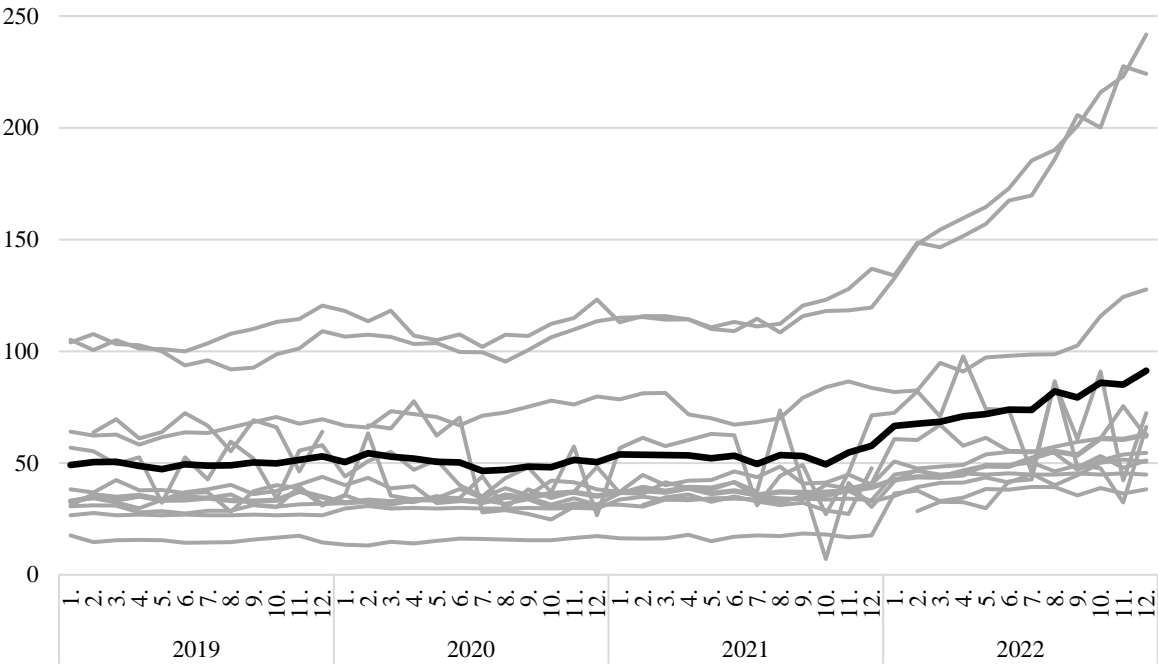
On this basis, the GVH selected four specific input factors and compared their price evolution with the price evolution of raw milk. These inputs are the ones for which most producers submitted comparable data to the GVH during the accelerated sector inquiry. The inputs analysed were feed for the cows, medicines and energy for the maintenance of the cowsheds, i.e., electricity and natural gas.

In terms of the distribution of the inputs analysed, energy and pharmaceutical costs dwarf feed costs, with feed accounting for the largest share of the four cost factors analysed, at over 90%. Moreover, this distribution remained almost constant over the period under study, i.e., between 2019 and 2022, with a slight increase in the share of gas costs in the last year. By comparison, feed represents approximately slightly more than half of the total costs, so the four cost elements examined by the GVH cover roughly 60-70% of the total costs. However, the increase in the cost elements not examined is likely to have been more moderate, a good example being drinking water, the price of which has remained stable for years and the water consumption of cows is significant.

Since feed costs are a very significant part of input costs, it is worth looking at the evolution of feed costs at the level of individual producers. The majority of the farms surveyed use both home-produced and purchased feed, but the data received do not show a clear parallel between the way in which feed is provided and its cost. The monthly cost of feed used varied between holdings, as shown in the Figure 5 ranged from 46 HUF/kg to 91 HUF/kg per month on average between January 2019 and December 2022. In itself, this value does not seem high, but a cow

consumes 50-55 kg of feed per day,²⁵ so the feed demand in the sector is very significant. The increase in unit prices was, however, a general trend observed in the data provided by all production enterprises. The price increase started in the second half of 2021 and accelerated from January 2022 onwards, with an increase of around 50% in the average unit price of feed within the year. Compared to the average price in January 2019, an increase of 85% was observed by December 2022.

Figure 5. Price evolution of feed purchased by dairy farmers per month (HUF/kg)

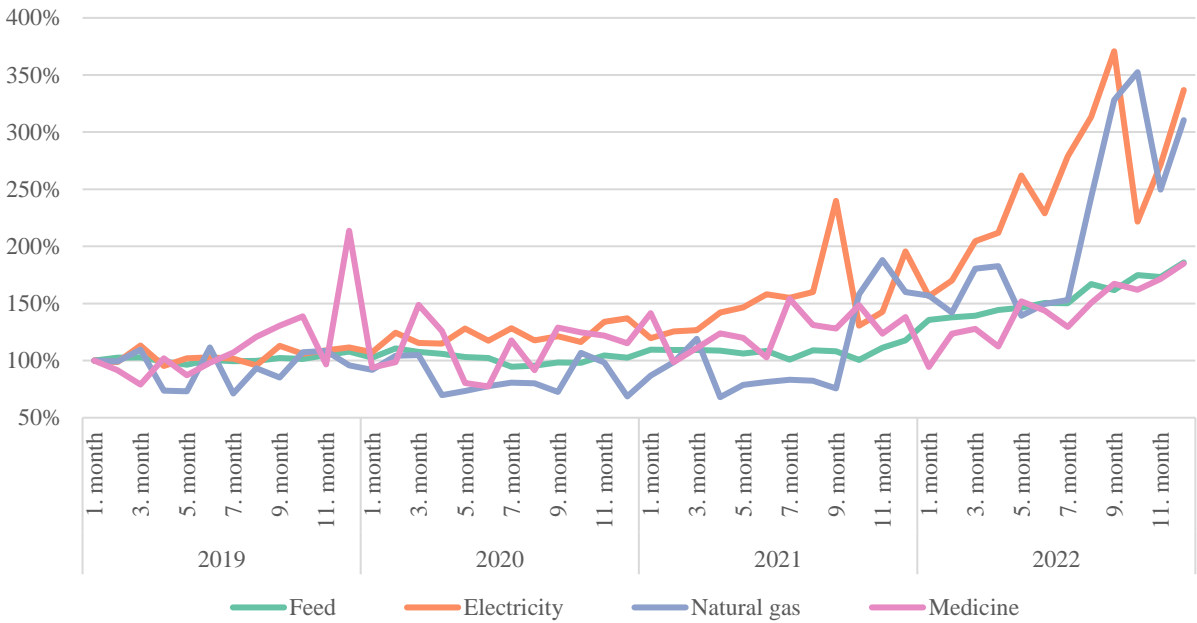


Note: N = 12; the grey lines show the individual data for each enterprise, while the black line shows the average
 Source: own calculation based on corporate data

Among the inputs examined, the price of electricity has increased the most over the last four years (Figure 6) that is closely followed by the price of natural gas. (Dairy farms use electricity and gas in their operations, mainly for milking and treatment of raw milk, heating, feeding, animal supply and transport - see above for a discussion of production processes.) As with feed costs, energy costs started to rise in the second half of 2021, and by the end of 2022 the average purchase price of electricity and gas had tripled compared to January 2019.

²⁵ <http://www.tedejrt.hu/tevekenysegek/tejelo-szarvasmarha-agazat> (downloaded 14 April 2023)

Figure 6. Evolution of average costs for dairy farms (January 2019 = 100%)

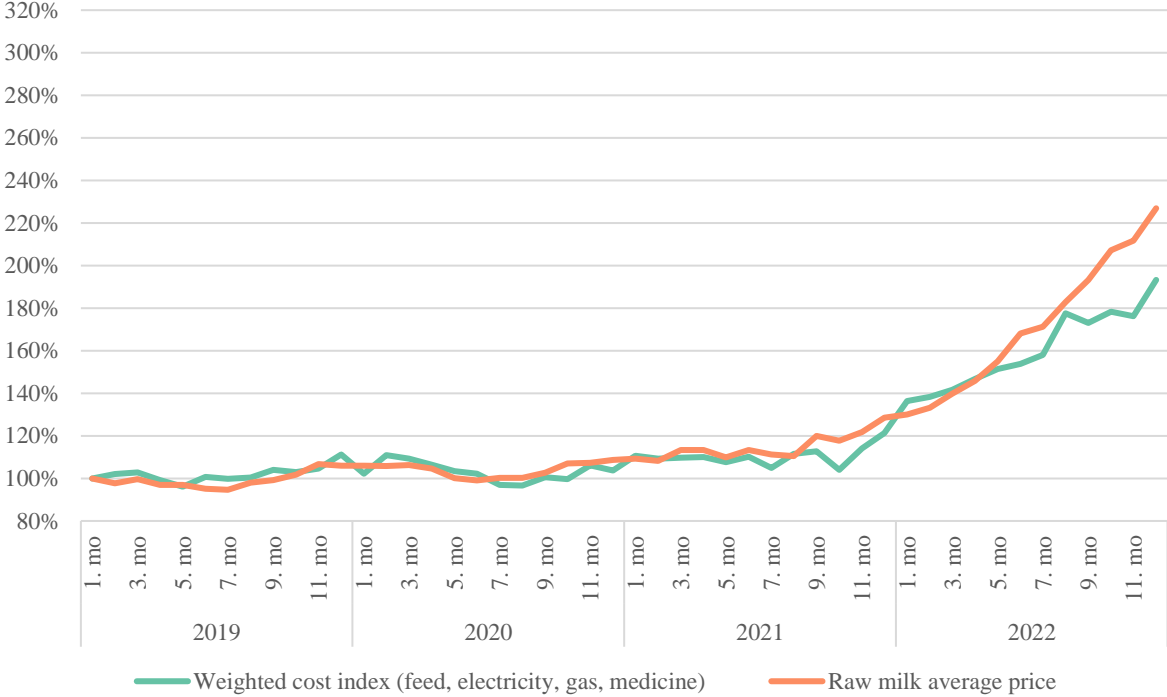


Note: N = 17
 Source: own calculation based on corporate data

The aggregated price increases of the four costs under consideration, weighted by cost ratios, and the increase in the average price of raw milk produced are shown in Figure 7. It can be observed that until the summer of 2021, production costs and the delivery price of raw milk moved almost entirely together, i.e., the rise and fall in costs was followed by the evolution of the average price of raw milk. In early 2022, the two factors again moved at a similar pace for a few months, and then in the second half of 2022 the rate of increase in the producer price of raw milk was again significantly higher than the increase in costs, a difference which remained until the end of the period under examination. While between January and December 2022 the four cost elements together increased by about 40%, the raw milk price increased by about 70% and the steep price rises continued unabated until the end of the year.

In addition, inputs not included in the study typically show only lower cost increases, for example, the unit price of water, mentioned earlier, did not change between 2019 and 2022, so it can be said that the increase in total costs for dairy farmers is likely to be below Figure 7, i.e., the difference between the increase in costs and the increase in producer prices may be even more striking.

Figure 7. Evolution of the four cost components and the producer price of raw milk for dairy farms (January 2019 = 100%)



Note: N = 19

Source: own calculation based on corporate data

VI. Production of dairy products for consumers: dairy processors

Presentation of major market players

At the next level of the milk and dairy supply chain, as described above, there are milk processing companies, which produce dairy products, semi-finished products and other by-products from the raw materials they purchase (primarily raw milk). These finished products are mostly sold by the milk processing undertakings to food retailers and sometimes to wholesalers.

Compared to the relatively high number of domestic dairy farmers described above, the number of dairy processing enterprises and their plants is significantly smaller. Although the information gathered during the accelerated sector inquiry indicates that there are more than 100 milk processing enterprises, only a little more than 10 of these can be considered as really significant players in the market. The complete list of processing undertakings is publicly available on the website of the National Food Chain Safety Office (NFCSO).²⁶

The following is a brief description of this level of the supply chain, based on the submissions, data and information received from the most significant domestic dairy processors according to the information obtained during the accelerated sector inquiry.

According to the information collected during the accelerated sector inquiry and also publicly available, Sole-Mizo Zrt, Alföldi Tej Kft, Tolnatej Zrt, Kőröstej Kft and FrieslandCampina Hungária Zrt are the most significant dairy processing companies in Hungary today. In addition to these companies, other significant players include Naszálytej Zrt., Savencia Fromage & Dairy Hungary Zrt., Óvártej Kereskedelmi Zrt., Nádudvari Élelmiszer Kft., Kuntej Zrt., Fino-Food Kft. and Szarvasi Mozzarella Kft.

It should be noted that, in addition to the above-mentioned market players, products from other major companies can also be found on the domestic market. The products of these companies are imported into the Hungarian market. Such undertakings are Danone Kft. and Zott Hungaria Kft., which sell finished products produced in Hungary by plants in other EU countries, which are part of the same group of undertakings, possibly other contract manufacturers. FrieslandCampina Hungária Zrt. also falls partly into this category, although it produces several of its products in Hungary, but its dairy products of certain types are imported from factories in other EU countries.

The above-mentioned dominant players can be grouped according to the proportion of the dairy product range they produce or market. On the basis of this criterion, a distinction can be made between processors (including those marketing imported products) whose products cover almost the entire spectrum of the dairy product range - i.e., they are represented in almost all product groups - and those whose product range is narrower, perhaps specialising in only one type of dairy product, and whose products are exclusively produced or marketed in this area.

Based on these aspects, the data collected in the sector inquiry show that the companies producing almost all types of dairy products, in particular milk, cottage cheese, sour cream,

²⁶ <https://portal.nebih.gov.hu/-/elelmiszer-uzemlistak> (downloaded 14 April 2023)

butter, yoghurt, kefir, cheese, cottage cheese dessert, are Sole-Mizo Zrt., Alföldi Tej Kft., Tolnatej Zrt., Naszálytej Zrt. and Kuntej Zrt. These companies therefore have a very wide range of products, with customers able to find their products in almost all types of dairy products.

There are also players in the domestic market with a less extensive range of products. Such dairy processors and distributors include:

- FrieslandCampina Hungária Zrt. (products sold include flavoured milk desserts, cottage cheese sticks, butter creams and sandwich spreads, semi-skimmed cottage cheese, Caucasian kefir, flavoured semi-sparkling milk drinks and cream, milk drinks, cream sprays, coffee whiteners, UHT whipped and cooking cream, semi-hard cheeses, fruit yoghurts);
- Danone Ltd. (distributed products e.g., natural and flavoured yoghurts, yoghurt drinks, cream cheese, probiotic shots, puddings);
- Nádudvari Food Ltd. (its products include cottage cheese, sour cream, kefir, yoghurts and cream yoghurts, butter creams, cream cheese, cream cheese spreads, sandwich creams);
- Kőröstej Kft. (products sold include cheese and small quantities of butter);
- Zott Hungaria Ltd. (products sold e.g., puddings, sour cream, yoghurts, drinking yoghurts, bulk cheeses, cream desserts, milk rice).

The only domestic companies that produce cheese products are Savencia Fromage & Dairy Hungary Zrt. and Szarvasi Mozzarella Kft. These processors are therefore present in only one category of dairy products, which does not mean that they are not producers and distributors of popular brands in these segments.

Raw materials used by dairy processors

The largest raw material used by milk processing enterprises is raw milk, which, according to the information gathered during the sector inquiry, is predominantly sourced from Hungarian dairy producers. In this context, special mention should be made of Alföldi Tej Kft. as a state-recognised producer group owned by Hungarian dairy farmers.²⁷

Generally speaking - not including the above-mentioned companies marketing imported finished products - dairy processors typically source various flavourings and additives, sometimes butter, certain cheeses, whey and packaging materials from foreign sources, mainly from the European Union, if they are not available in Hungary or are not available in sufficient quantity or quality.

Manufacturer branded and private label products

In the domestic dairy market, especially for high-volume dairy products, it has become increasingly common in recent years for some dairy companies to enter the market not only

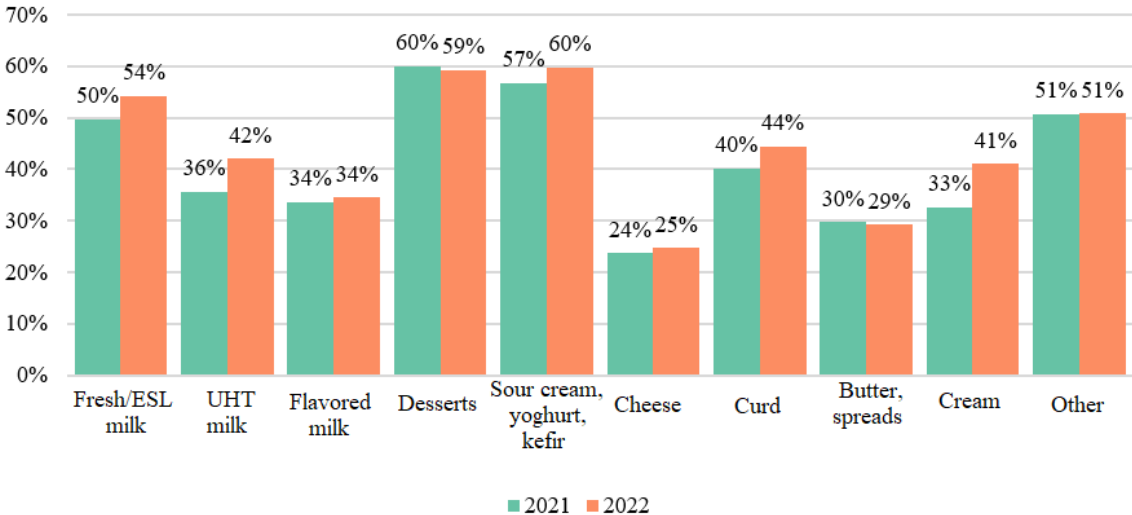
²⁷ <https://atej.hu/rolunk/> (downloaded 14 April 2023)

with their own brands, but also to produce so-called commercial or private label products on behalf of their food retail chains.

The main reasoning behind this trend is that these private label products can be sold to consumers at a lower price by the retail chains that order them, as they can obtain them at a lower price. Indeed, private-label products do not involve marketing costs for the processing company, unlike private-label products, and therefore dairy processors can sell their dairy products to retail chains at a lower price.

The vast majority of the dairy processors and- distributors contacted during the accelerated sector inquiry stated that they produce/distribute private label dairy products to retailers. The data received during the survey showed a very wide variation in the types of dairy products that processors produce and the proportion of their total domestic sales that are commercial private label sales. Overall, it can be seen that domestic production of private label products is significant, although there are significant differences by product category, e.g., relatively low for cheese and relatively high for cream and yoghurt (Figure 8).

Figure 8. Average volume share of private label products in processors’ sales by product category in 2021 and 2022



Note: N = 10

Source: own calculation based on corporate data

Share of products exported by dairy processors

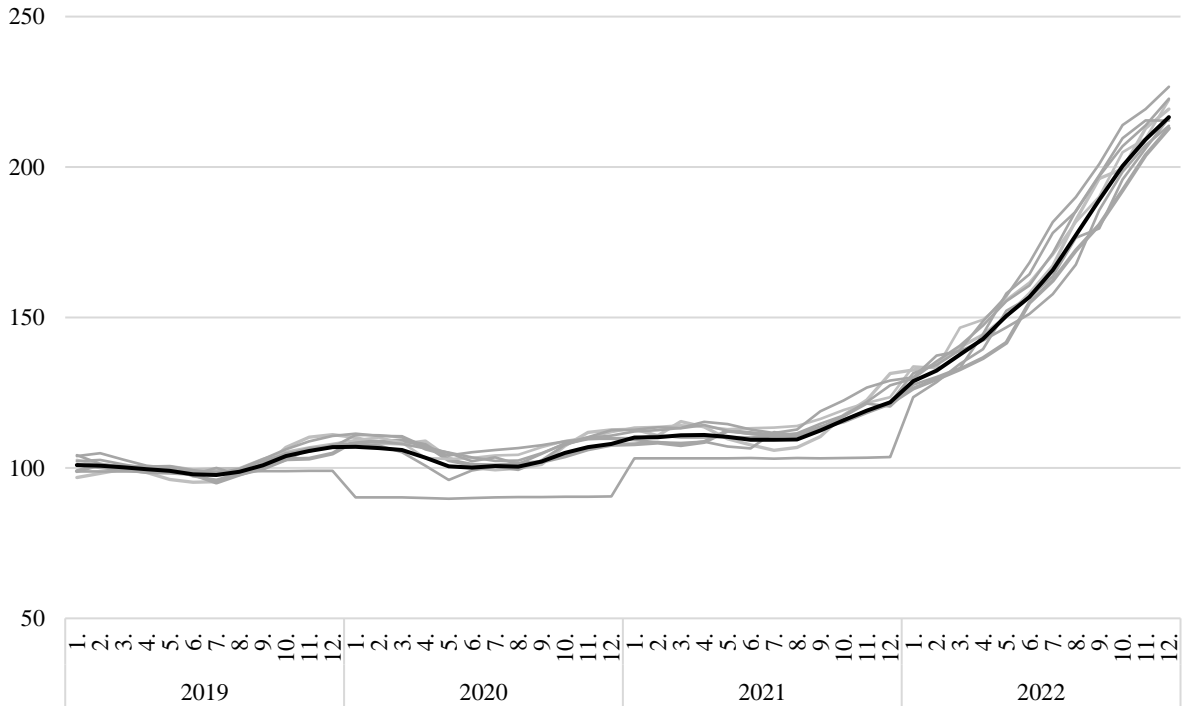
Based on the information collected during the accelerated sector inquiry, it can be concluded that the majority of dairy processing enterprises in Hungary sell their dairy products for export, but the share of exports in their total dairy product sales has not been significant at all in the last four years, with few exceptions. Those enterprises that did have export sales typically sold to the European Union and to some countries in the Balkans, although there are also sporadic examples of sales to more distant destinations in the Far East or overseas.

Evolution of production costs

As already described in the previous chapter at the level of dairy undertakings, the GVH has also requested data from milk processing undertakings in order to assess and analyse their costs (including raw milk purchased).

Raw milk is one of the most important inputs used by dairy processing companies, as it is the raw material used in the largest volume for the production of their products. Raw milk was therefore one of the inputs for which the GVH collected data on purchase prices from processors (Figure 9).

Figure 9. Price evolution of raw milk bought in by dairies per month (HUF/kg)



Note: N = 9; the grey lines show the individual data for each enterprise, while the black line shows the average
 Source: own calculation based on corporate data

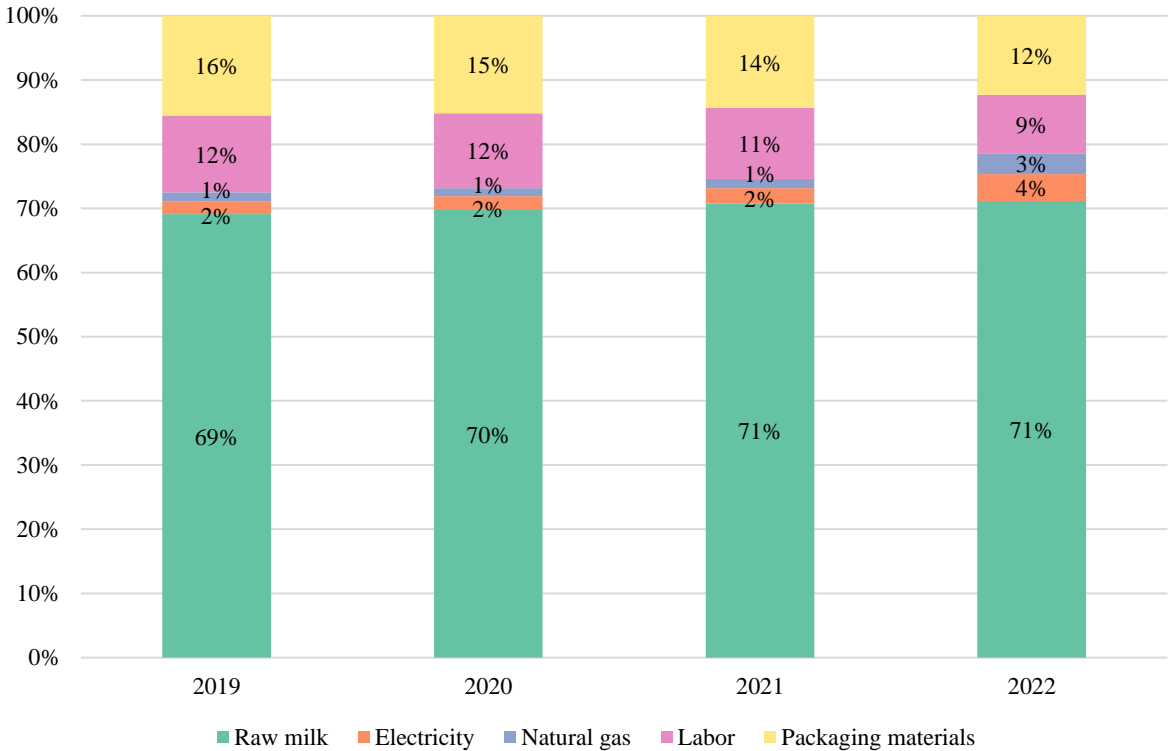
The cost of the raw milk used was very similar for each undertaking, as illustrated in Figure 9. The monthly average purchase prices reported in the data received were almost the same between January 2019 and December 2021 for all but one company, with some price differentiation in 2022. The monthly average price ranged quite widely between 98 and 218 HUF/kg during the period under study. The sharp increase in prices can be observed from the second half of 2021, accelerating from January 2022 onwards, with the average unit price of raw milk increasing by 70% during the year. By December 2022, the average price had risen by 98% compared to January 2021. It can therefore be concluded that the price of raw milk has roughly doubled in two years, which is in line with the change in producer prices (Figure 7).

To review the evolution of costs, the GVH selected four additional input factors that are essential for milk processing and compared the evolution of their prices with the evolution of

raw milk prices. The inputs selected included the energy (electricity and gas costs) needed to run the processing plant, as the production of dairy products is very energy-intensive due to the pasteurisation and cooling that takes place. In addition, labour costs and the cost of packaging materials for the finished products were also analysed, as packaging materials are often sourced from abroad and price increases were reported.

The cost distribution of the inputs described is shown in Figure 10. The cost of raw milk used accounts for the largest share of the total costs of the enterprises, around 70%. This shows a minimal increase over the years, which is a consequence of the previous findings on the increase in the price of raw milk. The second, very significant cost is related to the packaging of the finished products, with a share of around 15%, followed by the cost of labour. Despite the increase in energy costs in the last year or two, the share of gas and electricity costs in the total costs was still only 7% in 2022.

Figure 10. Breakdown by value of the costs of milk processing enterprises



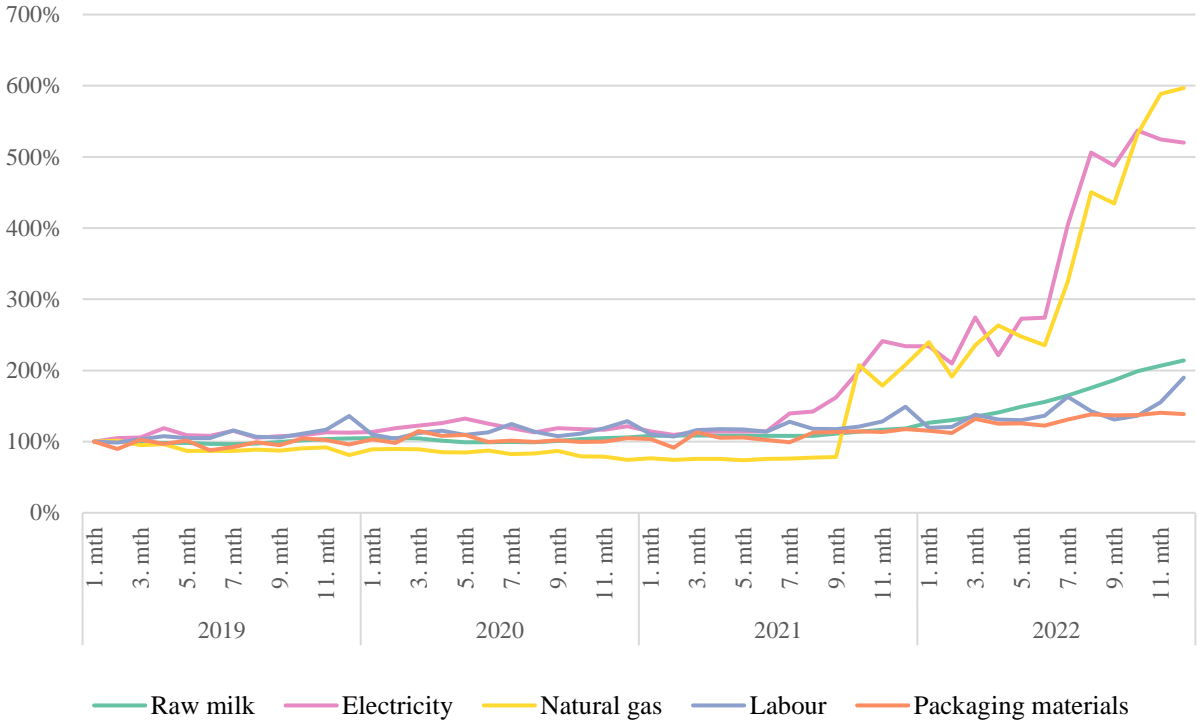
Note: N = 9

Source: own calculation based on corporate data

The average monthly price changes for the inputs under consideration and the rate of increase in costs (weighted by cost ratios) are shown in Figure 11 and Figure 12. By December 2022, labour costs had increased by 90% and packaging material by 40% compared to January 2019. It can be seen that while these costs increased less than the purchase price of raw milk, energy costs increased much more steeply by more than 400% from the second half of 2021. It is important to note, however, that energy costs represent a very small proportion of costs, and therefore the increase in total weighted costs shows a more moderate trend.

The rise in costs started in the second half of 2021 and was most significant in 2022. As Figure 12 indicates, the cost of the inputs analysed for dairy processors doubled between January and December 2022.

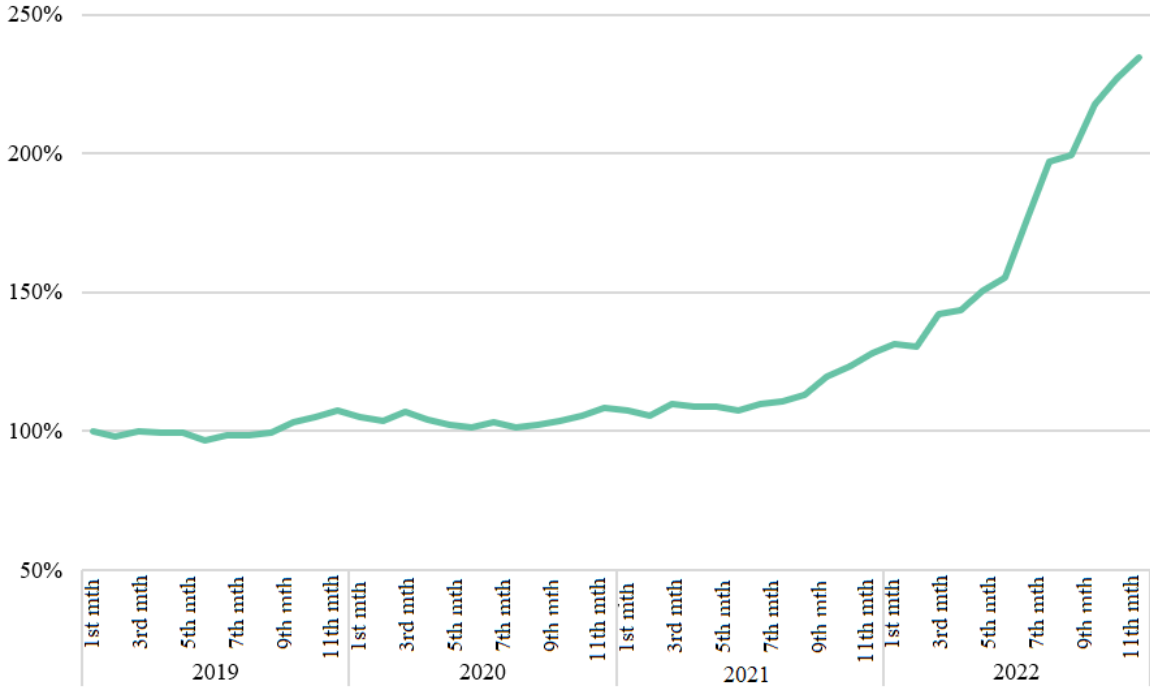
Figure 11. Evolution of monthly average costs for dairy processors (January 2019 = 100%)



Note: N = 9

Source: own calculation based on corporate data

Figure 12. Evolution of cost-weighted costs of dairy processing enterprises (January 2019 = 100%)



Note: N = 9

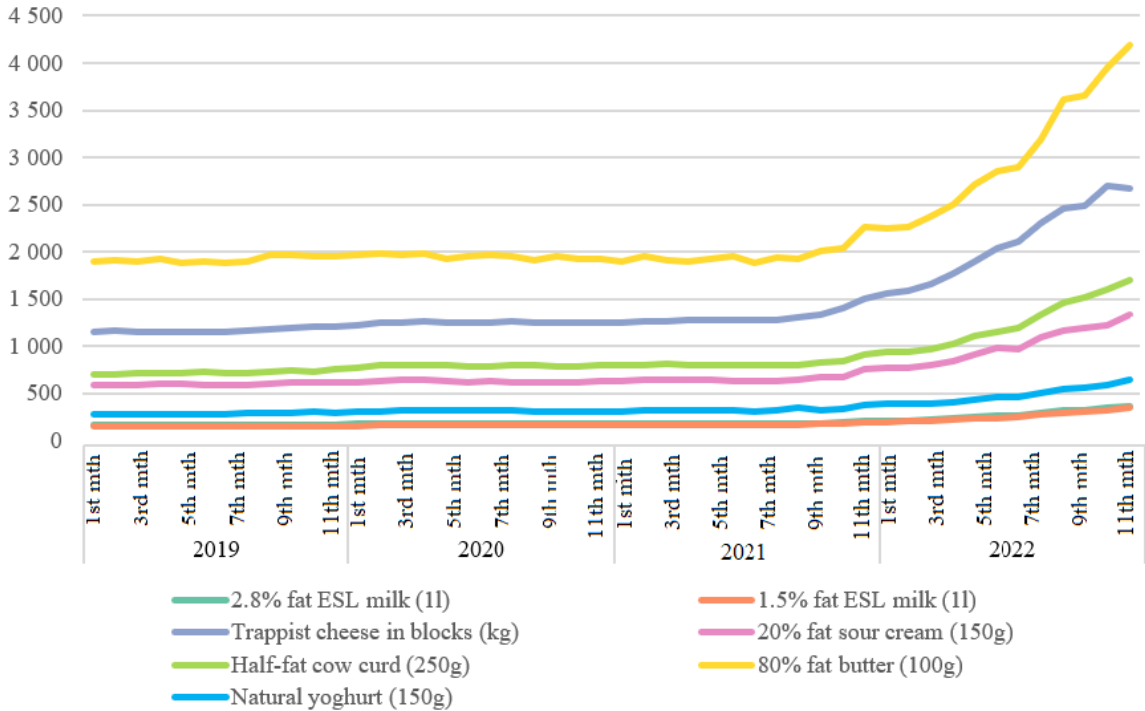
Source: own calculation based on corporate data

Evolution of ex-factory prices

For the analysis of dairy processors’ sales prices, six so-called standard products were examined. These six standard products were defined in such a way that they cover the most distinct product categories within dairy products, are present in the product range of most processors and are in high consumer demand. The standard products selected are: 1.5% and 2.8% fat fresh (ESL) milk, 20% sour cream, natural yoghurt, Trappist cheese, semi-fat cottage cheese and 80% butter.

The aim of the study was to investigate the absolute and relative price increases that have occurred in recent years in the various dairy product markets, whether there are distinct product categories that have experienced very high price increases or significantly lower price increases than others, and the reasons for these increases.

Figure 13. Average processor ex-factory price evolution (HUF/kg or HUF/l)



Note: N = 9

Source: own calculation based on corporate data

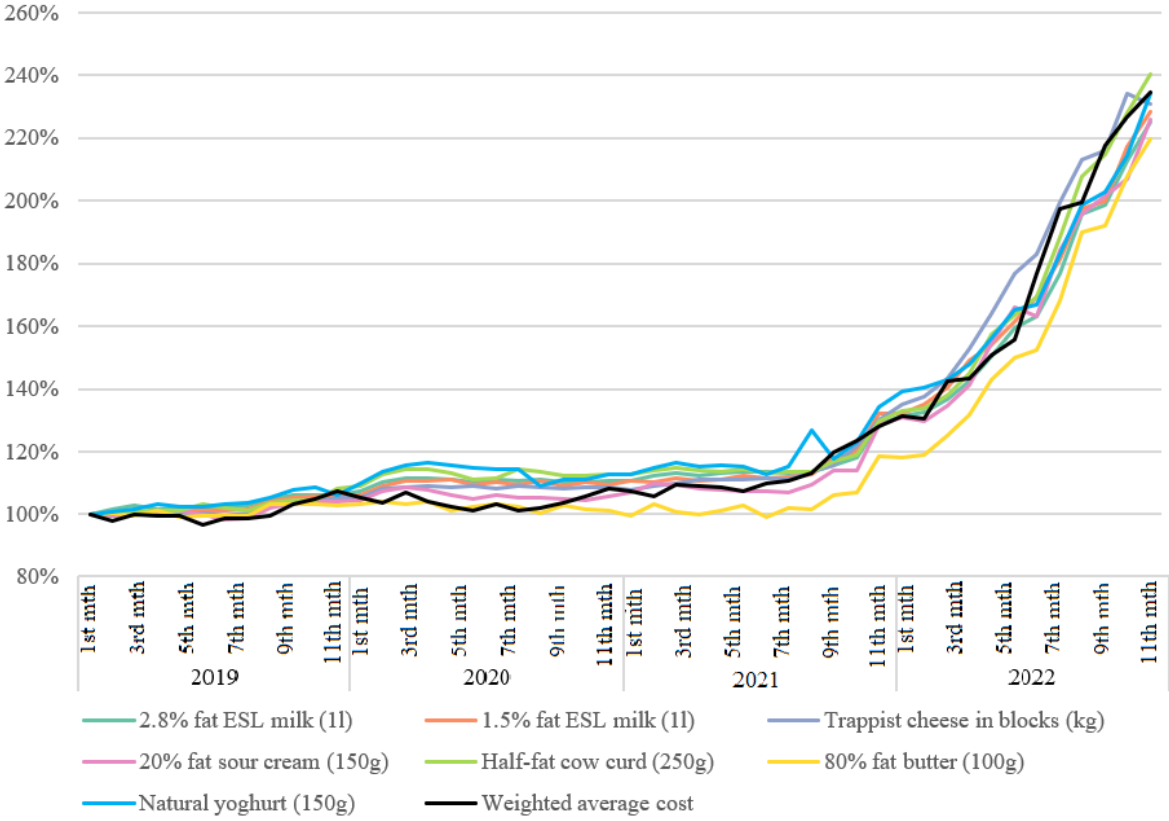
Of the standard products surveyed, the biggest increase in the past year in the ex-factory price of processors was for 80% fat butter, followed by half-fat cow’s curd, with an 81% rise. Overall, the products have experienced similar price rises (between 120% and 140%) over the four years under review, with no outliers being identified (Figure 13).

It can be seen from Figure 14 that the relative price changes for each of the standard products followed a similar pattern. As costs started to increase significantly in the second half of 2021, this was also reflected in the ex-factory prices of the products. In 2022, the price increase intensified further, with average ex-factory prices of the products increasing by almost 70%, almost in full line with the price changes for raw milk (and other costs).

At the beginning of the period under review, the increase in ex-factory prices was typically higher than the increase in costs, but in 2022 the overall increase was similar or lower, with the exception of Trappist cheese and half-fat cow’s curd.

The ex-factory price of butter was more pronounced below the weighted costs compared to other products, but we have seen that it increased significantly in 2022. To resolve this apparent contradiction, the price of butter barely increased in 2020 and 2021, starting from a relatively low base (while the prices of the other dairy products studied increased more in 2020 and 2021).

Figure 14. Evolution of ex-factory prices of processors and weighted costs for milk processors for certain dairy products (Jan 2019 = 100%)



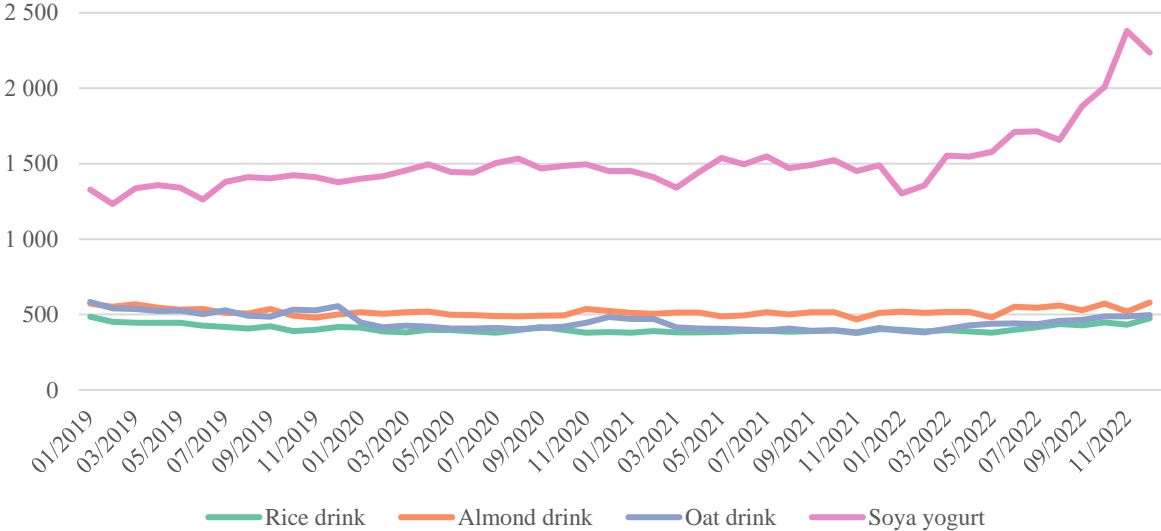
Note: N = 9
 Source: own calculation based on corporate data

Plant-based drinks and soy yoghurts

Plant-based milk alternatives are produced and marketed by a wide range of undertakings in Hungary. These include large international companies (e.g., Danone, Dr. Oetker) as well as small and medium-sized domestic companies (e.g., Fino-Food Kft., Vegan Health Kft., BIOrganik Online Kft.). Some of the products are imported, while others are produced in Hungary. In many cases, dairy companies are expanding their portfolio with plant-based products (e.g., Fino-Food Kft., Danone Kft., Profood Flexum Kft.), while in other cases they specialise in these products.

Of the plant-based milk alternatives, as previously described, only the various plant-based drinks and soy yoghurts were examined in the context of this accelerated sector inquiry. These products are almost exclusively imported into Hungary, so the average purchase and sales prices of the importing companies were compared. The evolution of purchase prices varied somewhat by product (Figure 15). For rice and almond drinks, no significant increase in purchase prices was observed, while for oat drinks and soy yoghurt, price increases of 20–30% were observed. Thus, the increase in purchase costs for domestic distributors was significantly less than for cow’s milk-based products.

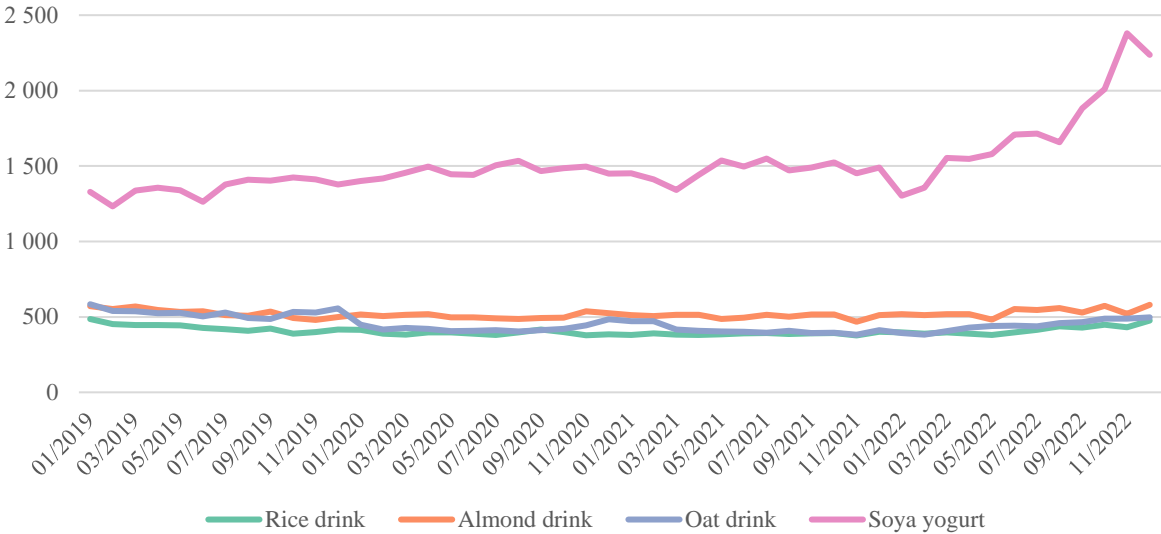
Figure 15. Average import prices of plant-based drinks and soy yoghurts (HUF/l or HUF/kg)



Note: N = 5
 Source: own calculation based on corporate data

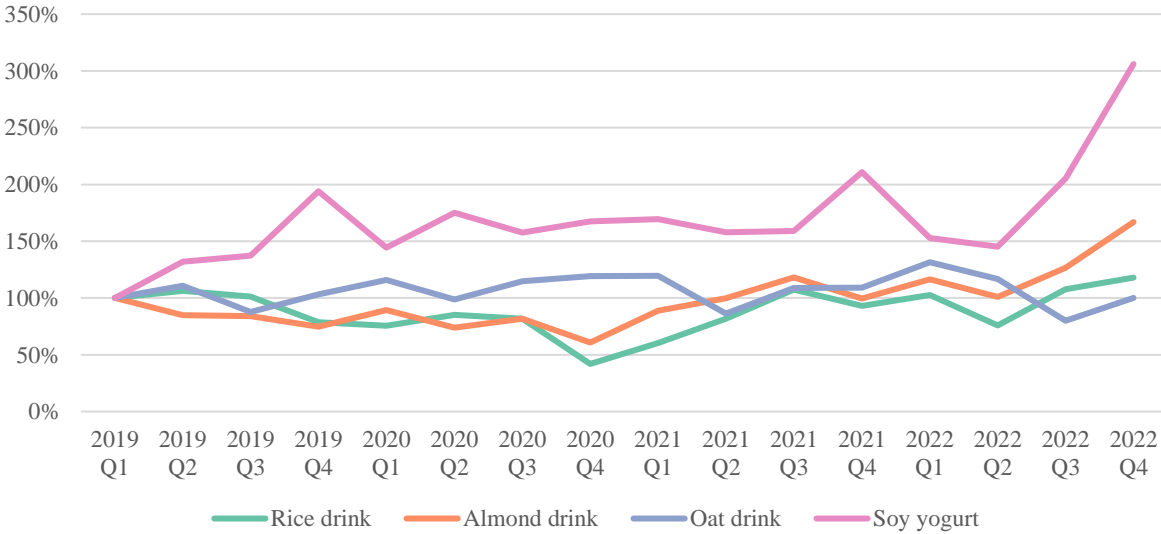
The evolution of sales prices of importers is shown in Figure 16. The difference between the import price and the sales price is the importer’s gross margin, which is shown in Figure 17. These show that the importer’s gross margin for plant-based drinks barely changed during the period under review, but started to increase somewhat in the second half of 2022. For soy yoghurts, the gross margin increased in 2019, remained essentially stable in 2020 and 2021, and then started to increase very significantly in the second half of 2022. The increase in 2022 may have been driven not only by rising costs for importers, but also by the fact that the price increases for milk-based products made it easier for consumers to accept price increases for these potential substitutes.

Figure 16. Evolution of average sales prices of importers for plant-based drinks and soy yoghurts (HUF/l or HUF/kg)



Note: N = 5
 Source: own calculation based on corporate data

Figure 17. Evolution of the gross margin of importers of plant-based drinks and soy yoghurts (Q1 2019 = 100%)



Note: N = 5
 Source: own calculation based on corporate data

VII. Retailers

At the lowest level of the milk and dairy supply chain are those who sell directly to consumers. Dairy products are typically purchased by retail companies directly from dairy processing plants or through the Hungarian representations of foreign dairy processors, and occasionally from wholesalers.

Compared to the number of dairy producers described above, the number of significant companies also involved in the retail trade of milk and milk products is low, around ten based on the data provided, which is similar to the number of significant dairy processing companies. It is important to note, however, that there are several franchised retail chains in Hungary (CBA, Coop, Reál), which typically group smaller independent retailers, but are more important because of their combined purchasing power.

The remainder of the chapter explains the pricing and purchasing behaviour of retailers in the dairy supply chain, and the market problems and observations they face, based on the data obtained during the investigation, documents and data obtained during fieldwork, and publicly available sources.

Relevant market players and their categorisation

According to the data available to the GVH, ALDI Magyarország Élelmiszer Bt., Auchan Magyarország Kft., CBA Kereskedelmi Kft., CO-OP Hungary Zrt., Lidl Magyarország Bt., SPAR Magyarország Kft., Penny Market Kft., Reál Hungária Élelmiszer Kft. and TESCO-GLOBAL Áruházak Zrt. are the most important companies also involved in the retail of milk and dairy products. In addition, there are also marginal, independent retail outlets that are not part of any of the major retail chains, and companies that are mainly active in the online space, such as Kifli.hu Shop Kft.

Retail chains include both domestically owned and foreign-owned companies. Those that are mainly Hungarian-owned are typically franchised by CBA Kereskedelmi Kft, CO-OP Hungary Zrt and Reál Hungária Élelmiszer Kft, while the other retailers mentioned are Hungarian subsidiaries of foreign companies.

In terms of the way companies operate, a distinction can be made between companies operating a franchise network system, companies operating discount stores, hypermarkets, convenience stores and companies selling only in the online space. In the case of non-franchised food retail chains, it is the head office that is in contact with their national suppliers, and in general with dairy processing plants, and places the purchase orders. In contrast, franchising networks are characterised by the fact that a franchisee is responsible for the purchasing of several of its outlets.

Sources of supply of dairy products

According to the information received by the GVH from retailers, the largest retail chains in Hungary typically purchase their dairy products directly from processing companies. Furthermore, the available data indicate that retail chains tend to offer products from domestic

producers as much as possible. Dairy products that are not typically produced in the country are necessarily imported by retailers.

According to the GVH's findings, an increasing number of products that are also produced in Hungary have recently been imported to retail shelves. The reason given by the market players contacted during the investigation was that the domestic purchase price of many dairy products had increased to such an extent that it had become more economical for retailers to source from abroad in order to minimise their costs and to make their products available to consumers at the lowest possible price.

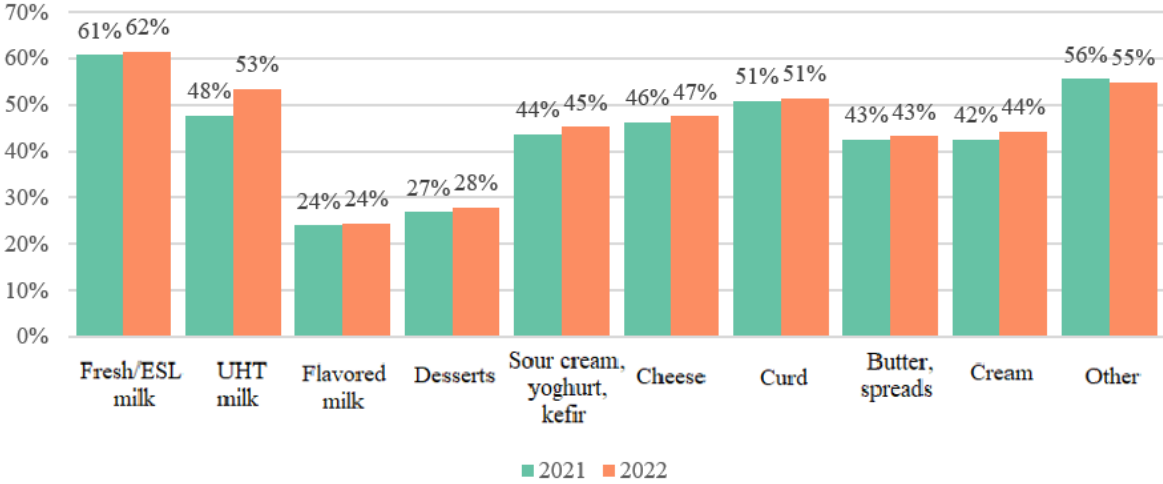
According to the data received from retailers, the reason for their increased purchase costs is that input costs for domestic dairy producers and processors have increased significantly. This is due, among other things, to rising energy costs, higher feed prices, an increase in the minimum wage and the upheaval in the milk fat balance (see box), according to the data received. The rise in these input prices may have been contributed to by the weakening of the national currency against the currencies used in the region, which further increased the price of imported inputs from abroad and the opportunity cost of selling products abroad.

Based on the data services received, the following process is meant by milk fat imbalance. Government Decree 6/2022 (14 January) (food price cap) imposed an official price on 2.8% fat cow's milk treated at ultra-high temperatures. This naturally increased the demand for this product (as the Milk Interbranch Organisation and Dairy Board referred to in its submission to the GVH). Retailers wishing to meet the greatly increased demand and the legal stockholding obligation were obliged to purchase increasing quantities of the price-regulated product, while demand for 1.5% fat milk decreased. The significant shift in demand between 1.5% and 2.8% fat milk (decrease in the former and increase in the latter) meant that the milk fat available in dairies had to be sold in UHT milk at an increased rate, leaving less milk fat for the production of other products (e.g., butter, cheese). As a consequence, the production of these products became more costly and the supply of dairy processors decreased. Thus, the price of products for which milk fat is required and which are not regulated by the government decree in question, indirectly increased as an indirect market effect of the official pricing of UHT cow's milk with a fat content of 2.8%.

Proportion of manufacturer and private label products

Before discussing the factors affecting price variation, we briefly describe the composition of each product group according to the average share of private label products sold by the largest retailers (belonging to international chains) in that group. Figure 18 shows that, with the exception of the 'other' category, the share of private label products in all product groups has increased by 2022, albeit by only a few percentage points. The highest share was for consumer milk, the lowest for dessert products and flavoured drinks.

Figure 18. Average volume share of private label products in international retail chain sales by product category in 2021 and 2022



Note: N = 6

Source: own calculation based on corporate data

Retailers’ costs, setting consumer prices

Some of the cost items affecting producers and processors also account for a significant share of retailers’ expenditure (e.g., energy, fuel), so their increase could also have contributed directly to the rise in consumer prices. For example, the purchase of dairy products generally requires refrigerated storage to preserve their quality or logistics using a means of transport suitable for refrigeration. Ensuring the right temperature has recently become more costly for all domestic actors in the supply chain due to increased energy prices.

Based on the data received, retailers take a wide range of factors into account when determining the prices they charge consumers. For most retail chains, one of the most important aspects is the coverage and reflection of the various costs and their variations in consumer prices. One of these main costs is the purchase price of products. For those products that are not covered by Government Decree 6/2022 (14 I) or other exempting regulations, retailers are obliged to take into account that, as a general rule, they cannot sell their products below the procurement price,²⁸ and are therefore obliged to, among other things, track purchase prices and their changes when setting their prices to consumers. This in itself meant a significant increase in consumer prices due to the significant increase in processor’s ex-factory prices described in the previous chapter.

According to the data available to the GVH, it has recently become increasingly common for retailers’ supply partners to request renegotiation of supply contracts, usually in order to obtain higher ex-factory prices. Whereas before 2022, supplier contracts were renegotiated one or two times a year, in 2022 this number multiplied for the majority of responding businesses.

²⁸ L. Section 7 (2) (i) of Act CLXIV of 2005 on Trade.

An additional cost element that is typically taken into account in retail pricing is the cost of various public charges and regulations that retailers have to bear. Such public charges introduced in the period under review are the retail tax introduced by Act XLV of 2020 and the additional retail tax imposed by Government Decree 197/2022 (4 June 2022), according to which retailers were obliged to pay an additional tax equal to 80% of the retail tax they would otherwise have paid in 2022.

In the case of products defined in Government Decree 6/2022 (14 January), pursuant to Government Decree 583/2022 (28 December), retailers are obliged to keep certain products in stock, as defined by the law. Data services show that the purchase prices of these products exceed the maximum prices set by the Decree, and therefore the sale of these products represents a loss for retailers, the extent of which will be explained in more detail later.

Another typical cost item is expenditure on wages, which has also increased over the past three years as a result of the rise in the minimum wage and the cost of living. Finally, the maintenance of stores and product logistics is a significant energy input, which has also led to significant additional expenditure as a result of rising energy prices in recent years.

In addition to cost considerations, the pricing behaviour of retailers is influenced by the highly competitive environment in the segment. Market players take into account the prices charged by their competitors to consumers in various ways when setting their prices in order to target their customers with more favourable offers - evidence of this daily practice of competitive monitoring and of increased competitive pressure is supported by evidence obtained by the GVH from several sources.

Analysis of retail prices and margins

In its analysis of the evolution of consumer prices, the GVH examined the evolution of retailers' purchase prices and costs, thus providing a picture of how retailers' margins and profitability changed between 2019 and 2022.

For retail companies, most of the revenue from the final selling price (on average around 75%) covers the purchase value of the goods sold. The level of the purchase price is the result of the price bargain between the retailer and the dairy processor concerned, and although its evolution is influenced by the retailer, it is mainly influenced by changes at the processing level, according to the information available (this is confirmed by the price transmission analysis presented in Chapter VIII).

The difference between the selling price and the purchase price of a good is called the gross margin. From this gross margin, the retail company has to cover all its other costs, from the wages of its employees to the energy and operating costs to the taxes paid. The amount remaining after deducting all costs is the company's profit. Generally speaking, the more competitive the retail sector, the more the gross margin will follow the change in costs, as consumers will be driven away from retailers who increase their prices more than their costs increase. At the same time, when setting consumer prices, retailers are influenced by many non-cost factors that affect the specific pricing strategy of individual products. The retailer is also

constrained by the demand for the product and some of its characteristics (e.g., perishability), as well as by the structure of the retail market and the intensity of competition.

In the analysis, the GVH examined dairy products broken down into five product groups (drinking milk; cream, yoghurt, kefir; cheese; cottage cheese; butter and butter cream). For each of these five product groups, the price evolution of one or two standard products with a significant consumption rate was examined in detail. The evolution of the purchase and sales prices of these products and the difference between the two, the change in the gross margin over time between 2019 and 2022, are presented below.

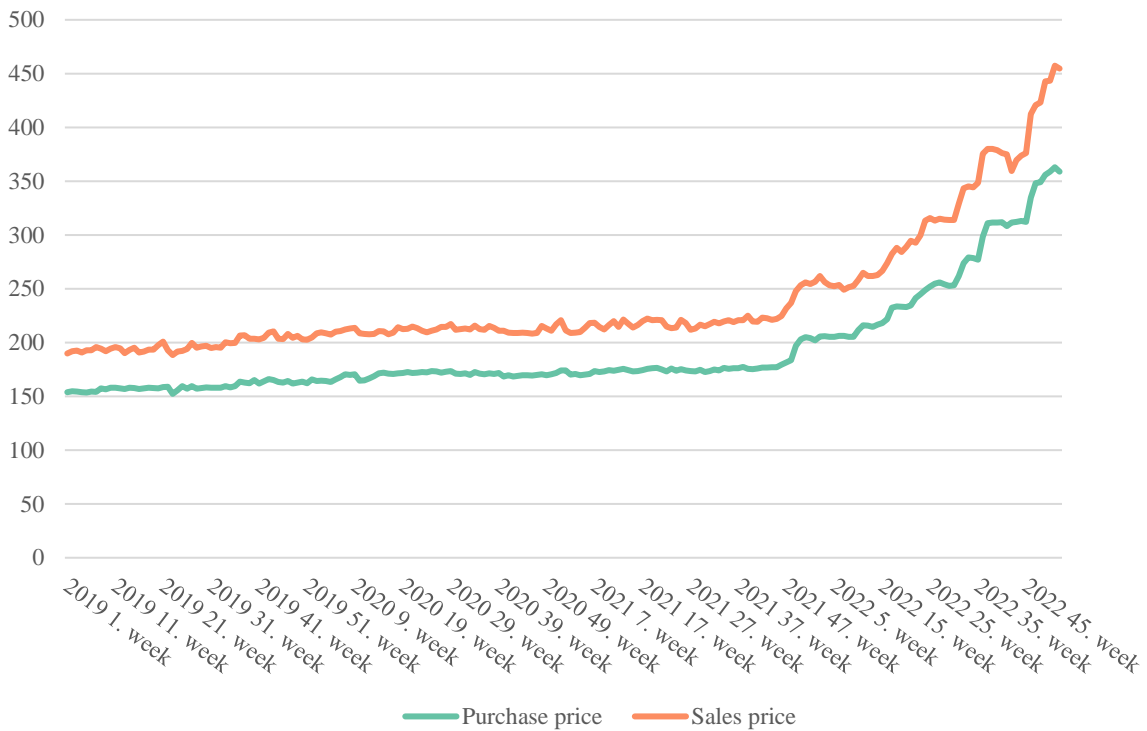
The gross margin was also broken down by cost item in the analysis. The assumption behind the statistical method used is that each product is allocated a proportion of the non-distributable costs in 2019, so for example, the cost of running the stores is allocated proportionally to each product sold in the store in 2019. We then examined how the magnitude of each cost changed in the following years (2020, 2021 and 2022) and, based on the percentage change in costs, we examined how the gross margin would have changed if these cost increases had also been proportionally charged by retailers on each product. The meaning of these figures is essentially that, if the company's costs are allocated proportionally to the products sold, then how many forints of the gross margin realised on a unit of product (one litre, one kilogram, etc.) on average in a given year were spent by retailers on each cost item and how many forints were realised in profit. If retailers increased/decreased the gross margin of a product in 2020, 2021 or 2022 more/less than the proportional change in costs, their profit on that product increased/decreased.

In reality, the theoretical assumption may differ substantially from the actual one, as retailers also take into account other factors (e.g., price elasticity of demand, product durability) when setting prices, and retailers are free to decide on their pricing strategy, i.e., the extent to which they change the prices of products, which products are relatively cheaper and which relatively more expensive. The price and cost analysis presented here is therefore only illustrative. The situation is further complicated by the fact that the introduction of a price ceiling (price cap) on certain food products has led to very significant losses for retailers on some products, which may have upset the pricing strategy and necessitated a rethink of the previous pricing strategy.

Consumer milk

In the consumer milk product group, the product types with the highest sales volumes that are not subject to price controls (1.5% and 2.8% fat ESL milk) were analysed. The purchase and sales prices of these two product types have followed a similar trend in recent years (Figure 19 and Figure 20). Both figures show the steep change in trend towards the end of 2021 and the close correlation between purchase and selling price.

Figure 19. Average purchase and net sales prices of ESL milk with 1.5% fat content (HUF/l)



Note: N = 12

Source: own calculation based on corporate data

Figure 20. Average purchase and net sales prices of ESL milk with 2.8% fat content (HUF/l)

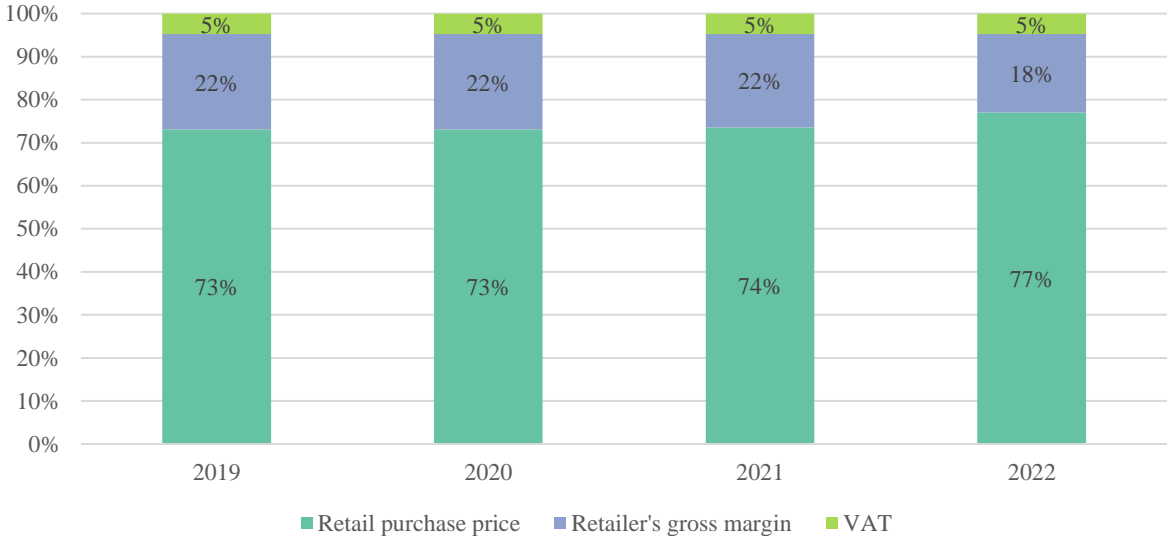


Note: N = 12

Source: own calculation based on corporate data

A breakdown of consumer prices shows that retailers' margins have fallen significantly in percentage terms by 2022 for both types of milk analysed (Figure 21 and Figure 22).

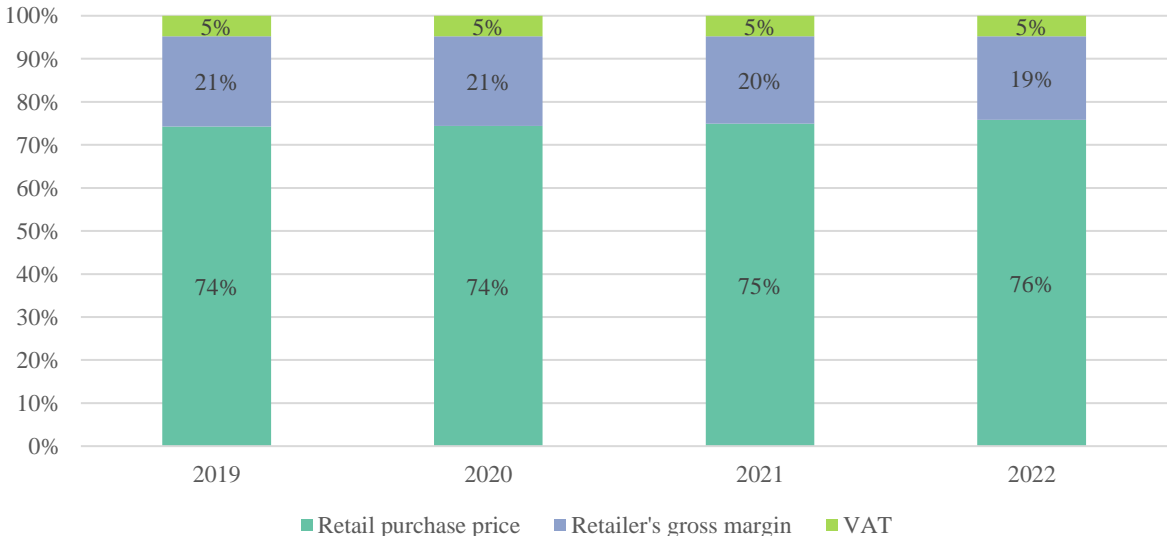
Figure 21. Consumer price breakdown of ESL milk with 1.5% fat content



Note: N = 12

Source: own calculation based on corporate data

Figure 22. Consumer price breakdown of ESL milk with 2.8% fat content



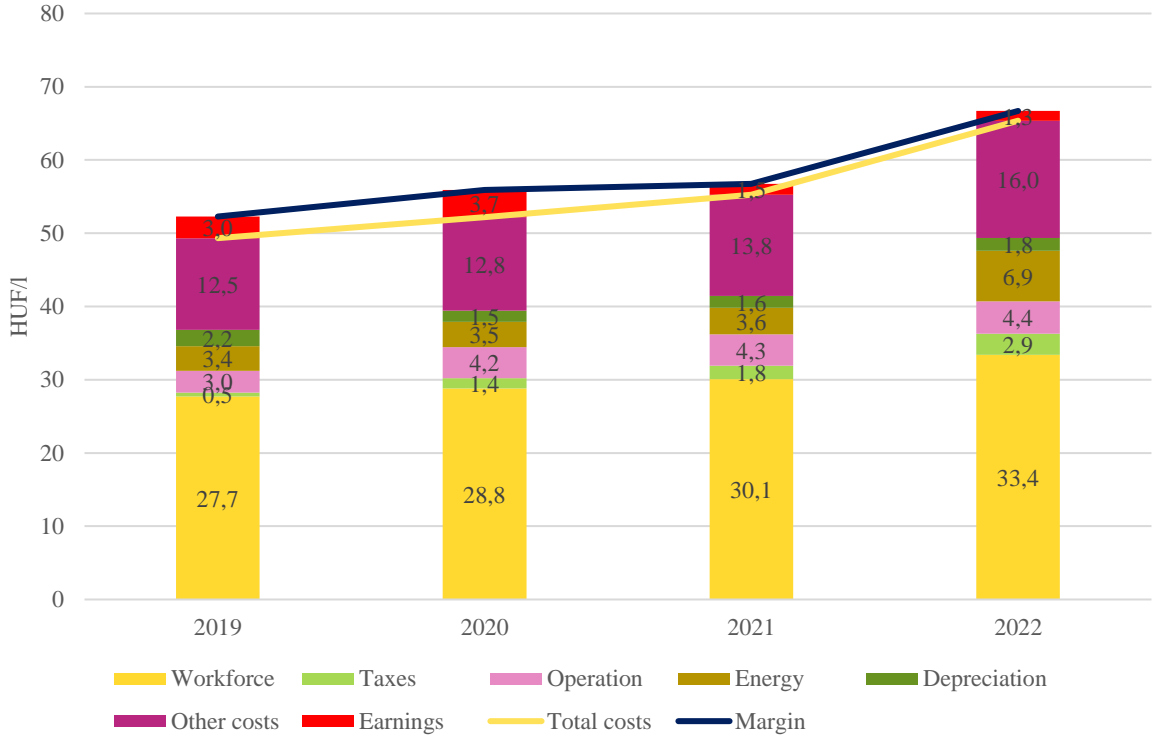
Note: N = 12

Source: own calculation based on corporate data

Despite the percentage decline, the retailer's gross margin increased in HUF terms, as the purchase price increased very significantly, as indicated by Figure 19 and Figure 20. The annual average gross margin and its breakdown by retailer costs are shown in Figure 23 for the 1.5% and Figure 24 for ESL milk with 2.8% fat content. While the negligible margin for 1.5% milk decreased somewhat further over time, the part of the margin identifiable as profit increased for 2.8% milk by 2022. Considering that the average consumer price of ESL milk with a fat content

of 1.5% and 2.8% was on average 366 HUF/l and 377 HUF/l respectively in 2022, these figures show that the net retailer profit was 0.4% for ESL milk with a fat content of 1.5% and 2.1% for ESL milk with a fat content of 2.8%.

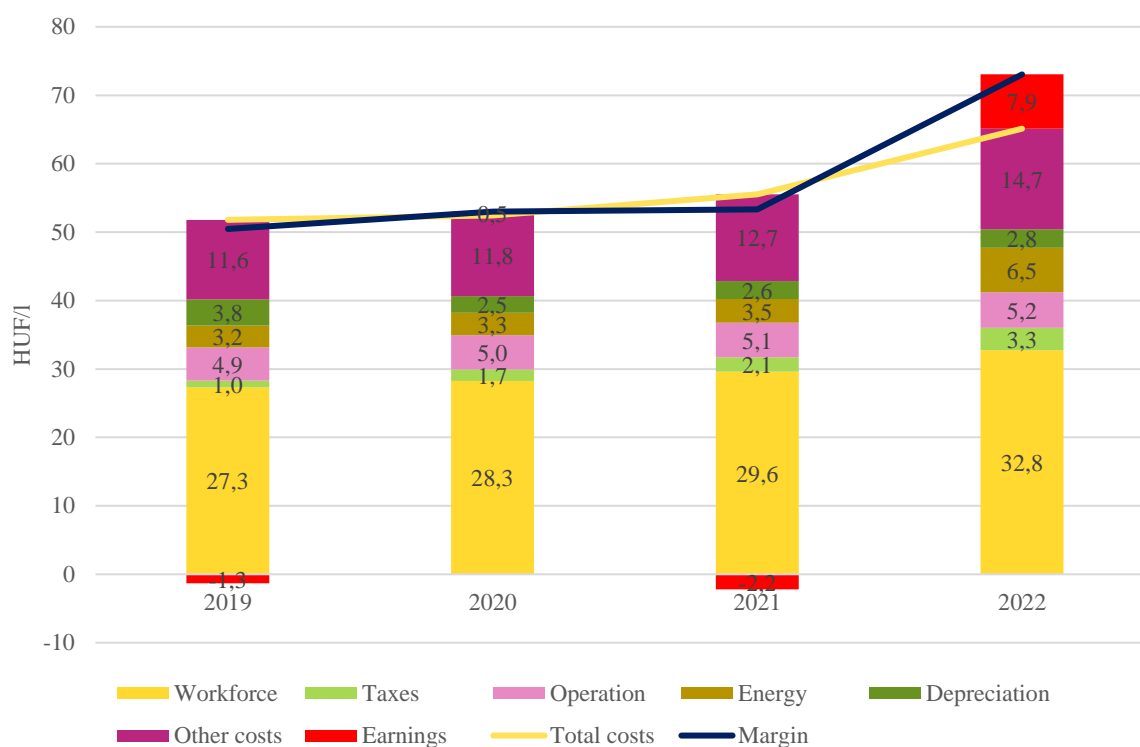
Figure 23. Breakdown of gross margin per component of 1.5% ESL milk (HUF/l)



Note: N = 12

Source: own calculation based on corporate data

Figure 24. Breakdown of gross margin per component of 2.8% ESL milk (HUF/l)



Note: N = 12

Source: own calculation based on corporate data

Butter, butter spread

The standard product we tested for this product group was butter with 80% fat content. For this product, too, there was a sharp and successive increase in average purchase and selling prices (Figure 25), which in both cases exceeded twice the price levels of previous years.

Figure 25. Evolution of average purchase and net sales prices of butter with 80% fat content (HUF/kg)

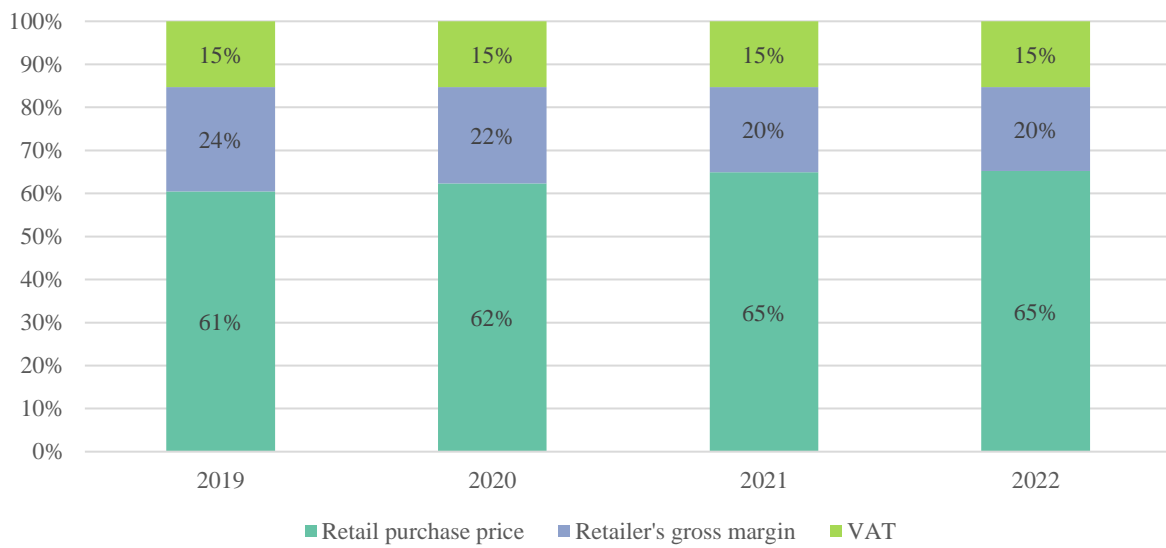


Note: N = 12

Source: own calculation based on corporate data

The breakdown of consumer prices shows that retailers’ margins have fallen significantly in percentage terms between 2019 and 2022 (Figure 26), despite a very significant increase in purchase prices, gross margins in HUF increased to a lesser extent. However, Figure 27 shows that butter went from a fairly profitable commodity in 2019 to a loss-making commodity in 2021. It can be seen that the increase in the gross margin realised on butter could not offset the increase in costs, which are proportionately related to this commodity. Thus, by 2021, retailers were on average losing more on their costs per unit of butter than they were gaining from the increase in the unit butter margin. By 2022, this loss-making trend seemed to have partially corrected, but it was still significantly lower and negative compared to 2019.

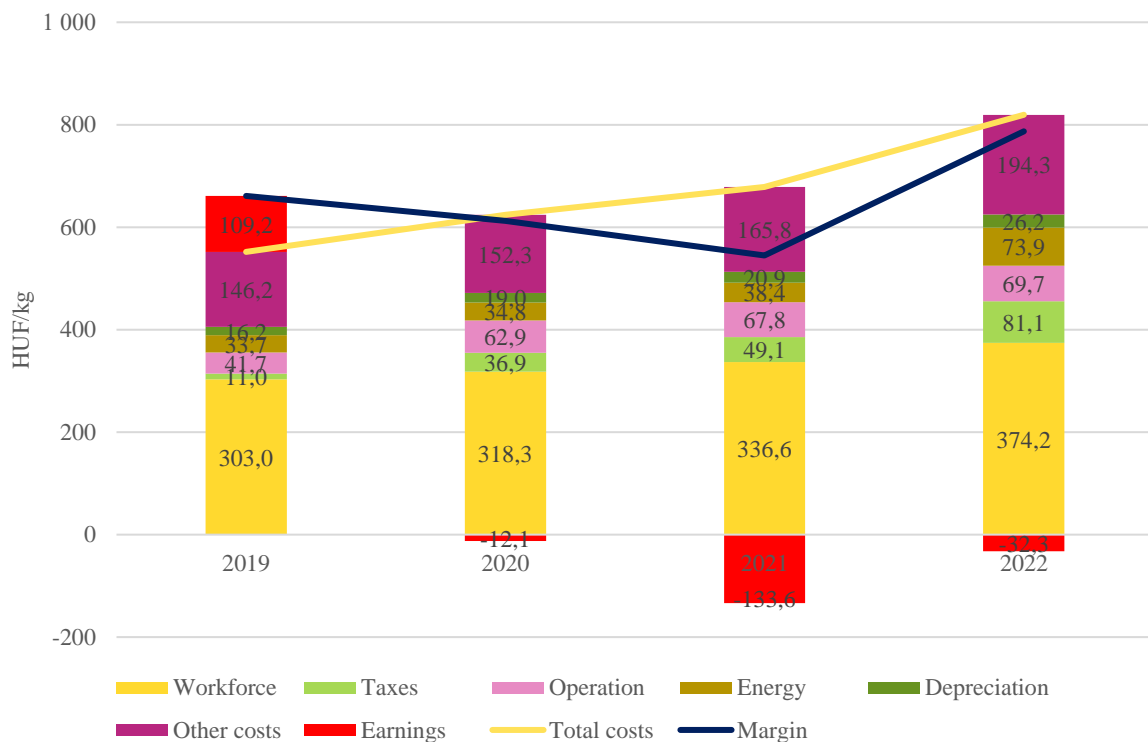
Figure 26. Consumer price breakdown for butter with 80% fat content



Note: N = 12

Source: own calculation based on corporate data

Figure 27. Breakdown of gross margins per component for butter with 80% fat content (HUF/kg)



Note: N = 12

Source: own calculation based on corporate data

Cottage cheese

To illustrate cottage cheese, we use semi-skimmed cow's milk as the standard product. Figure 28 shows the increase in purchase and selling prices, which are also well above double the prices in previous years.

Figure 28. Evolution of average purchase and net selling prices of half-fat cow's curd (HUF/kg)

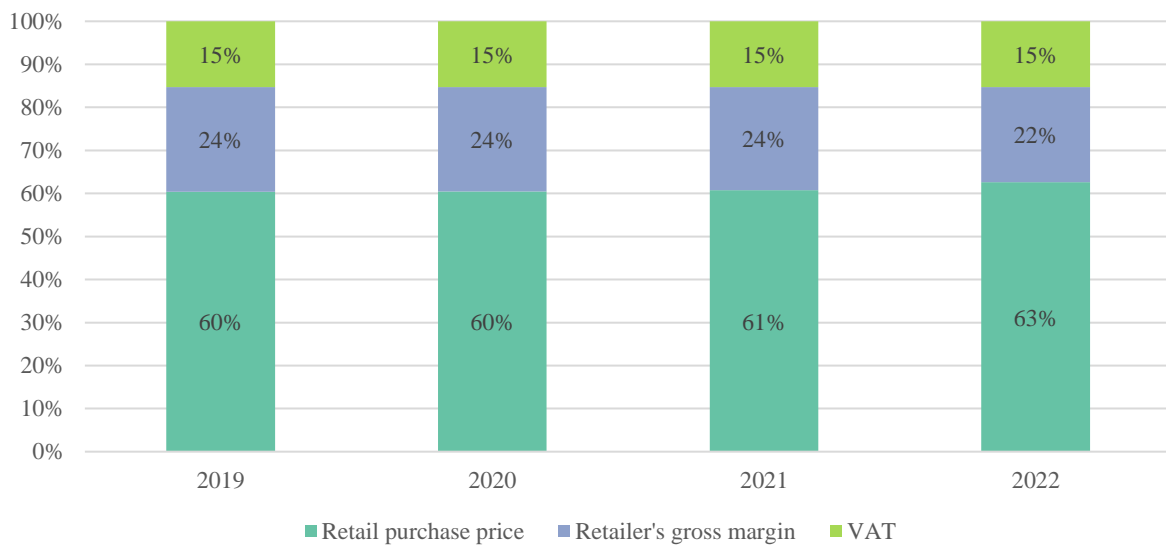


Note: N = 12

Source: own calculation based on corporate data

A breakdown of consumer prices shows that retailers' margins fell by a percentage in 2022 (Figure 29), but it is also true for this product that the significant increase in purchase prices has led to an increase in the margin in HUF. Figure 30 shows that retailers' net profits and costs followed each other almost in parallel over time, but that profitability in 2022 was higher than in 2019, 2020 and 2021. The retailer net profit of 77 HUF/kg on a kg of semi-fat cottage cheese in 2022 implied that the retailer's profit was on average 4.2% of the average consumer price.

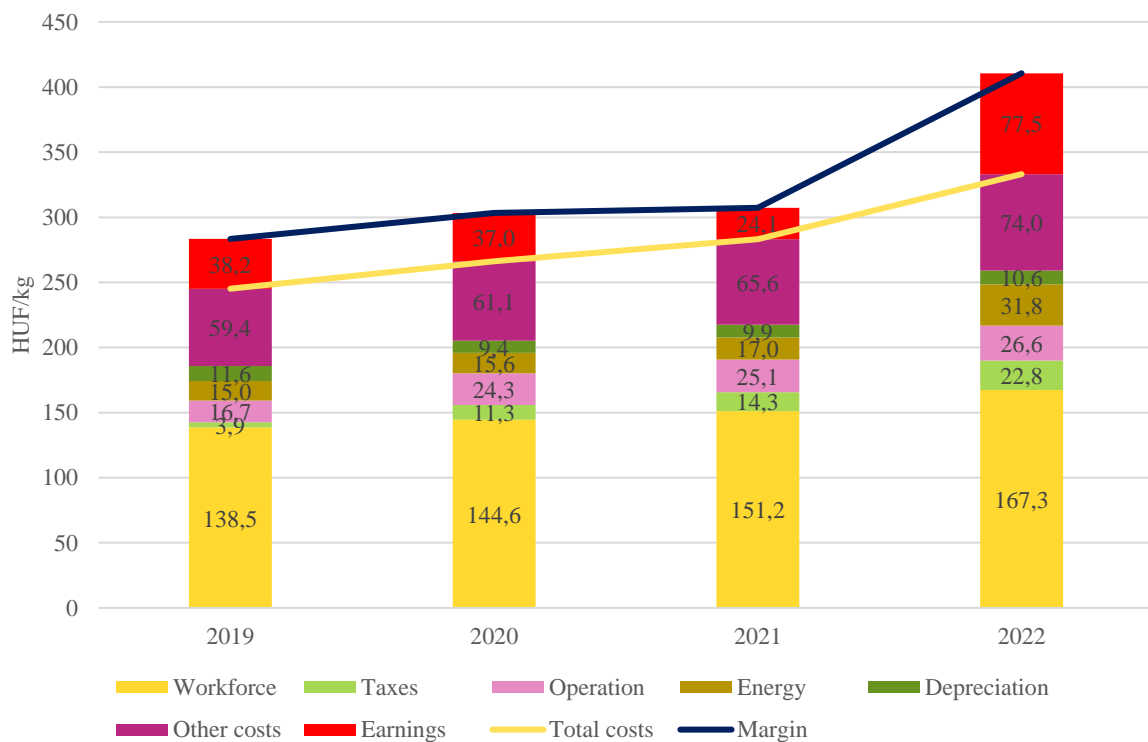
Figure 29. Consumer price breakdown for semi-skimmed cow's milk



Note: N = 12

Source: own calculation based on corporate data

Figure 30. Breakdown of the gross margin of semi-fat cottage cheese by component (HUF/kg)



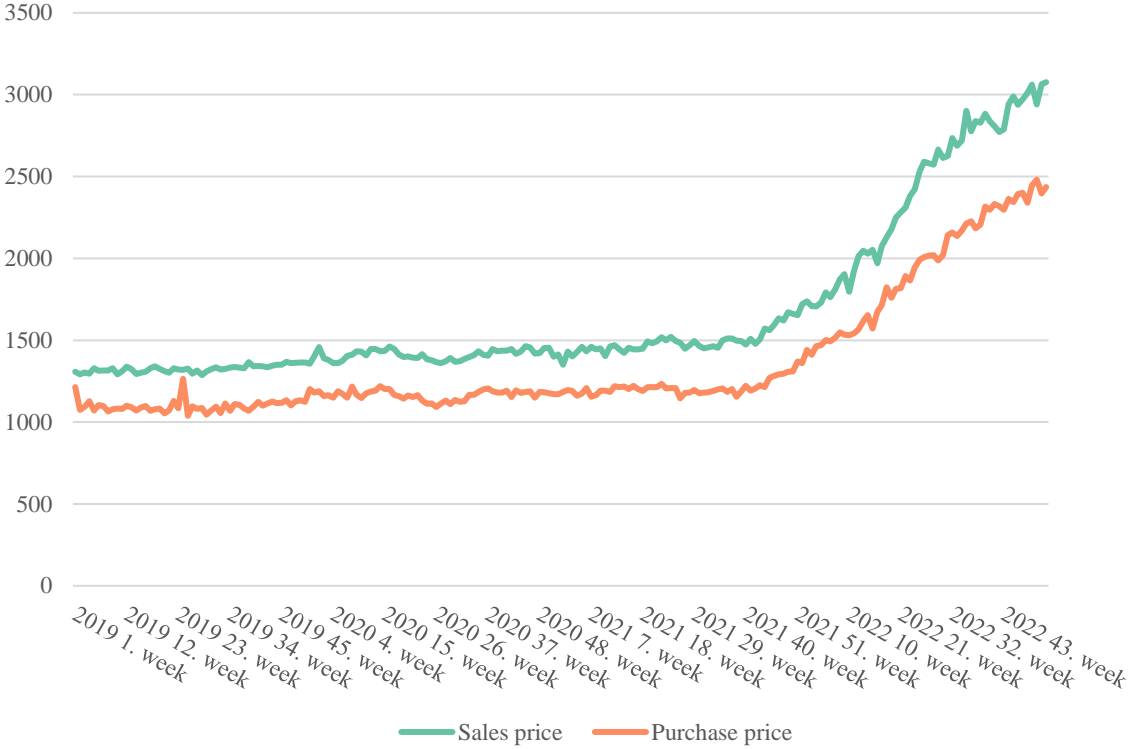
Note: N = 12

Source: own calculation based on corporate data

Cheeses

To illustrate the change in cheese prices, we use the cheese that has long been the largest volume seller in Hungary, Trappist cheese. Figure 31 shows that the purchase and selling prices of Trappist cheese have almost tripled on average over the period under consideration.

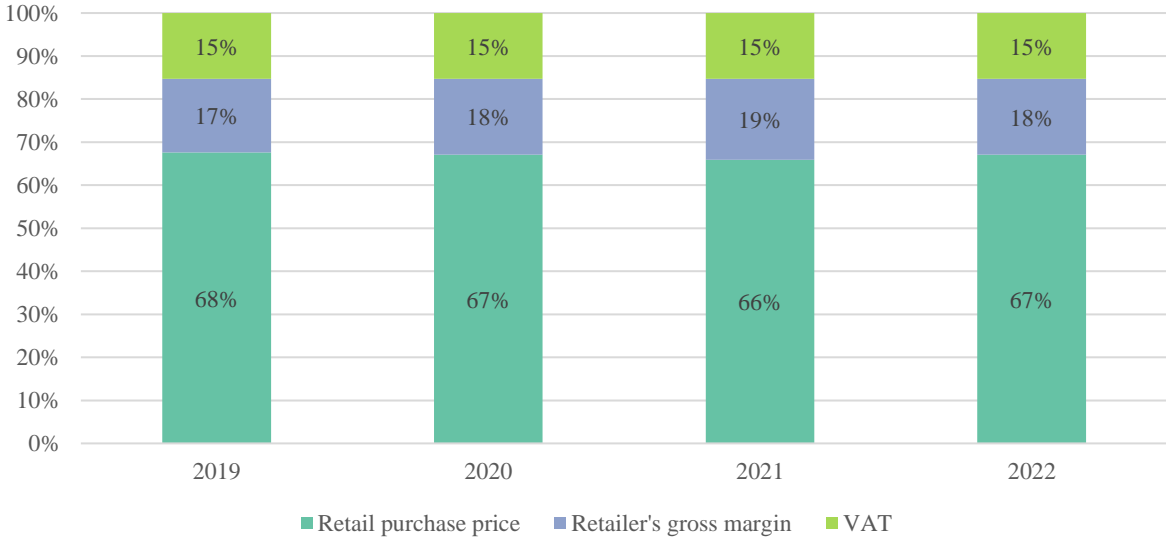
Figure 31. Evolution of average purchase and net selling prices of Trappist cheese (HUF/kg)



Note: N = 12
 Source: own calculation based on corporate data

The breakdown of consumer prices shows that retailers’ margins have essentially stagnated in percentage terms in 2022 (Figure 32), but it is also true for this product that the significant increase in purchase prices has led to an increase in the margin in HUF.

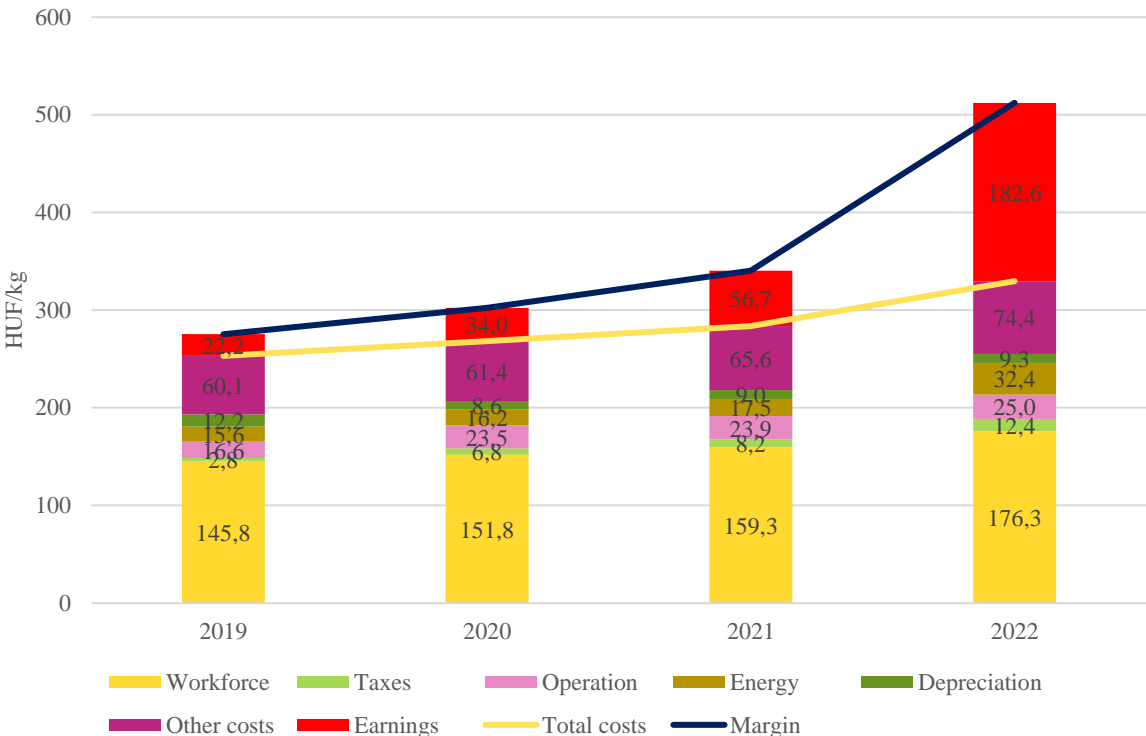
Figure 32. Consumer price breakdown of Trappist cheese



Note: N = 12
 Source: own calculation based on corporate data

Figure 33 shows that the increase in gross margin in HUF was higher than the increase in the proportional cost of this product, so the average profit realised by retailers on Trappist cheese increased by 2022 compared to 2019 and 2020. However, this was not the cause of the very significant increase in the price of Trappist cheese, as the profit of retailers was only 6.3% of the gross consumer price, while this consumer price increased by 161% from 2021 to 2022. While the average consumer price of a kg of Trappist cheese for the retailers surveyed was €2,899 in 2022, only €183 of this was left as profit for retailers, and €2,716 was incurred as a cost or tax.

Figure 33. Breakdown of the gross margin of Trappist cheese by component (HUF/kg)



Note: N = 12

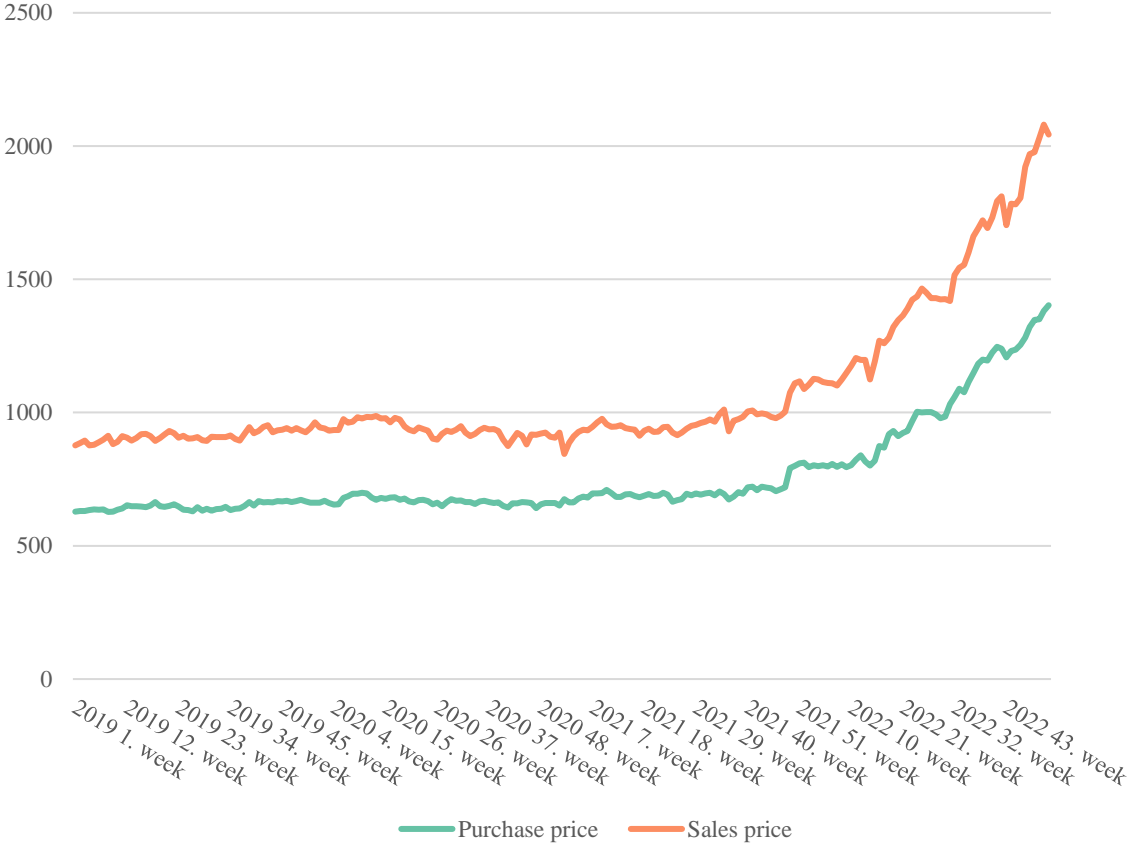
Source: own calculation based on corporate data

Sour cream, yoghurt, kefir

In this product group we also examined the standard products with the highest domestic demand, i.e., sour cream with 20% fat content and natural yoghurt.

The purchase and sales prices of 20% fat sour cream also increased significantly from the second half of 2021 and mainly in 2022 (Figure 34).

Figure 34. Evolution of average purchase and net selling prices of 20% fat sour cream (HUF/kg)

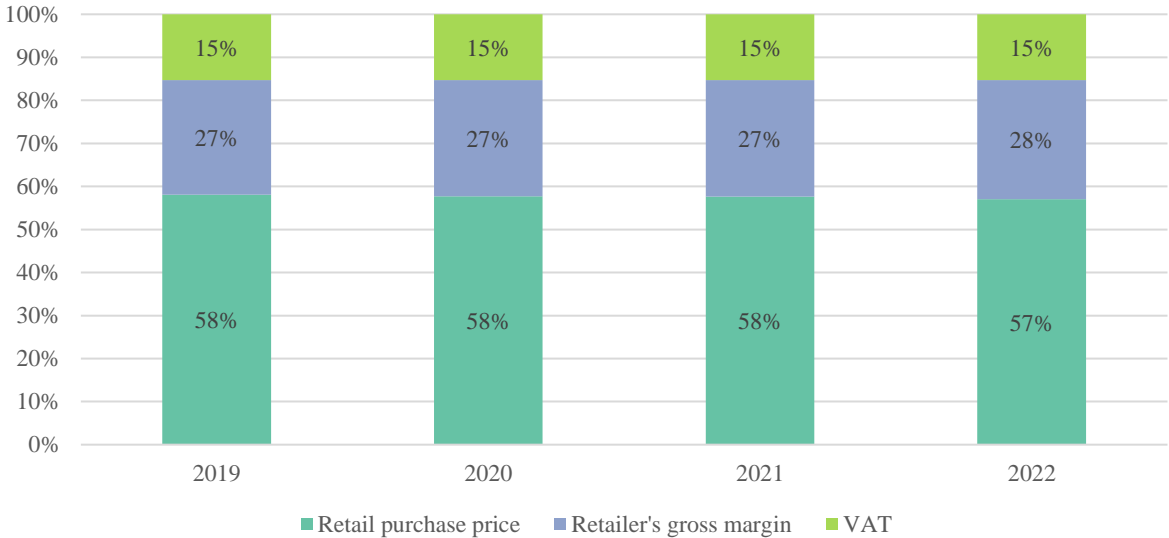


Note: N = 11

Source: own calculation based on corporate data

A breakdown of consumer prices shows that retailers’ margins have essentially stagnated in percentage terms between 2019 and 2022 (Figure 35), but it is also true for this product that the significant increase in purchase prices has led to an increase in the margin in HUF.

Figure 35. Consumer price breakdown of 20% fat sour cream

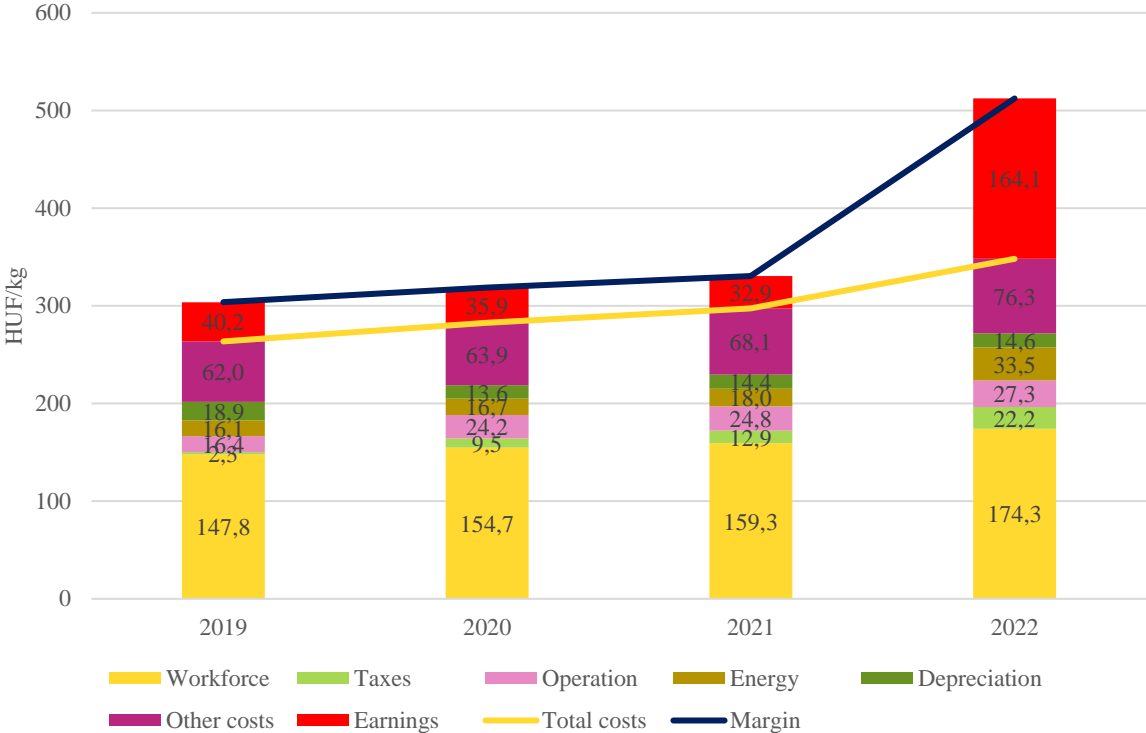


Note: N = 11

Source: own calculation based on corporate data

The breakdown of the retail gross margin shows that although retailers did not make high profits on dairy cream in the previous years, by 2022 the profit component of the gross margin increased compared to previous years (Figure 36). However, it is also true for this category that the retail profit was only a small part of the consumer price (8.9%) in 2022, so the significant price increase cannot be attributed to this, as it is negligible compared to the other components (purchase price, retail costs).

Figure 36. Gross margin breakdown of 20% fat sour cream by component (HUF/kg)

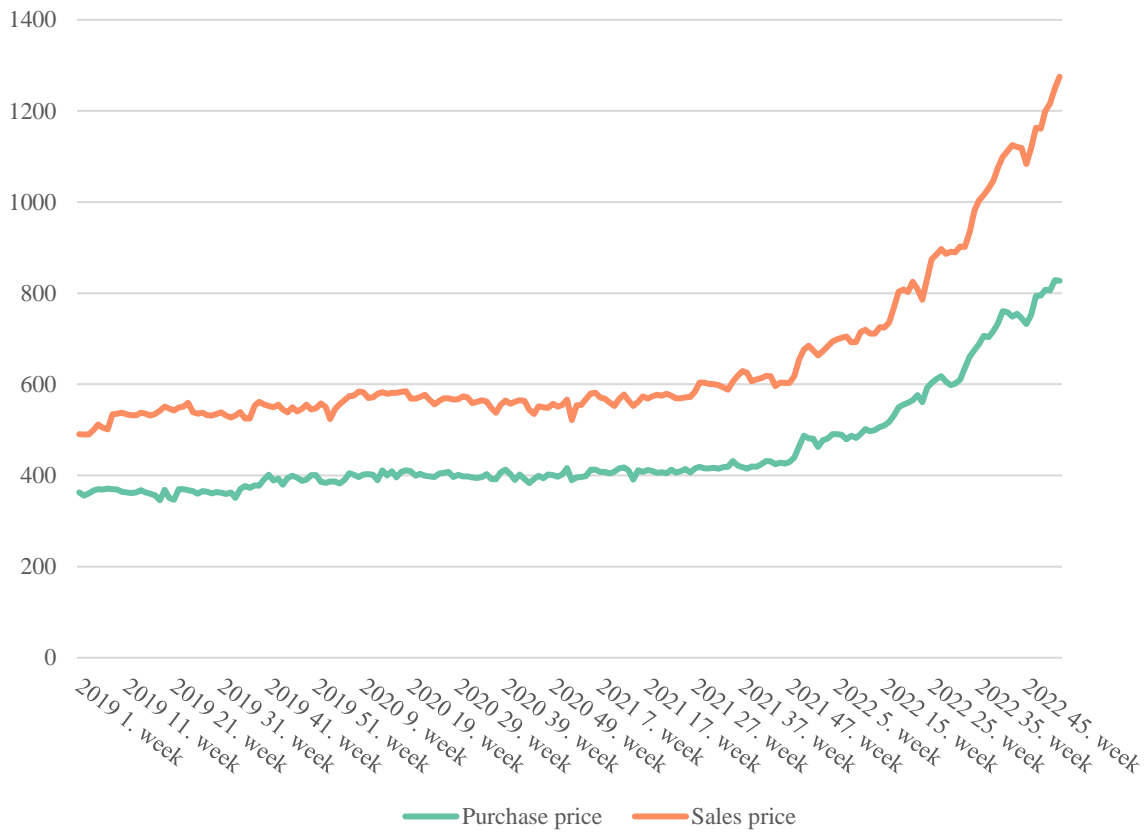


Note: N = 11

Source: own calculation based on corporate data

The changes seen for natural yoghurt are similar to those shown for sour cream, with significant increases in purchase and sales prices (Figure 37), the percentage retail gross margin remained essentially unchanged over time (Figure 38), which however resulted in an increase in the margin in HUF due to the significant increase in purchase prices. This process has led to an increase in retail net profits on this product (Figure 39), but it is also true that the retailer made a profit of only 103 HUF/kg (i.e., 9.5%) on natural yoghurt sold at a gross price of 1 078 HUF/kg, based on the data received, so the very significant price increase is basically due to the increase in purchase prices.

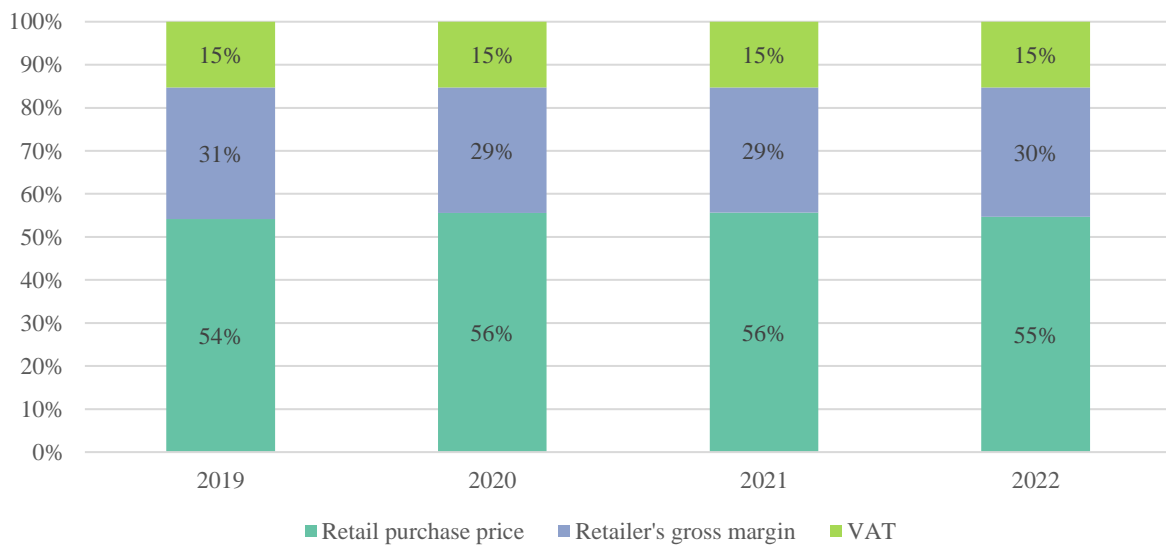
Figure 37. Average purchase and net selling prices of natural yoghurt (HUF/kg)



Note: N = 12

Source: own calculation based on corporate data

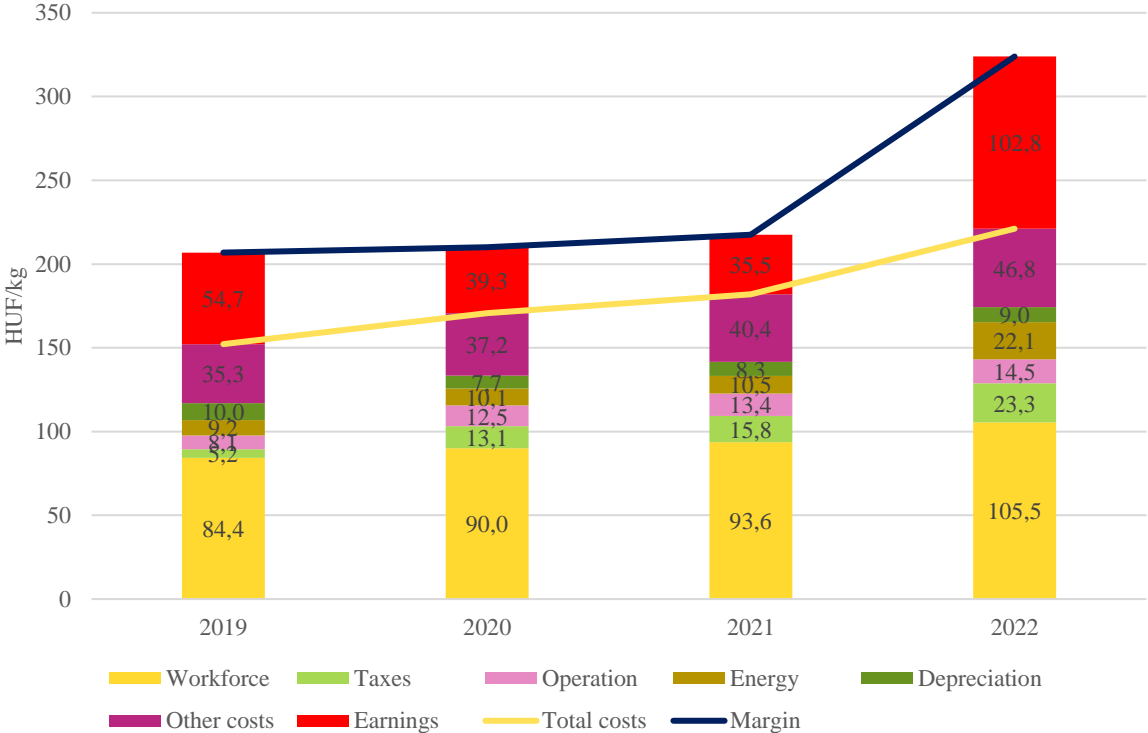
Figure 38. Consumer price breakdown of natural yoghurt



Note: N = 12

Source: own calculation based on corporate data

Figure 39. Gross margin breakdown of natural yoghurt by component (HUF/kg)



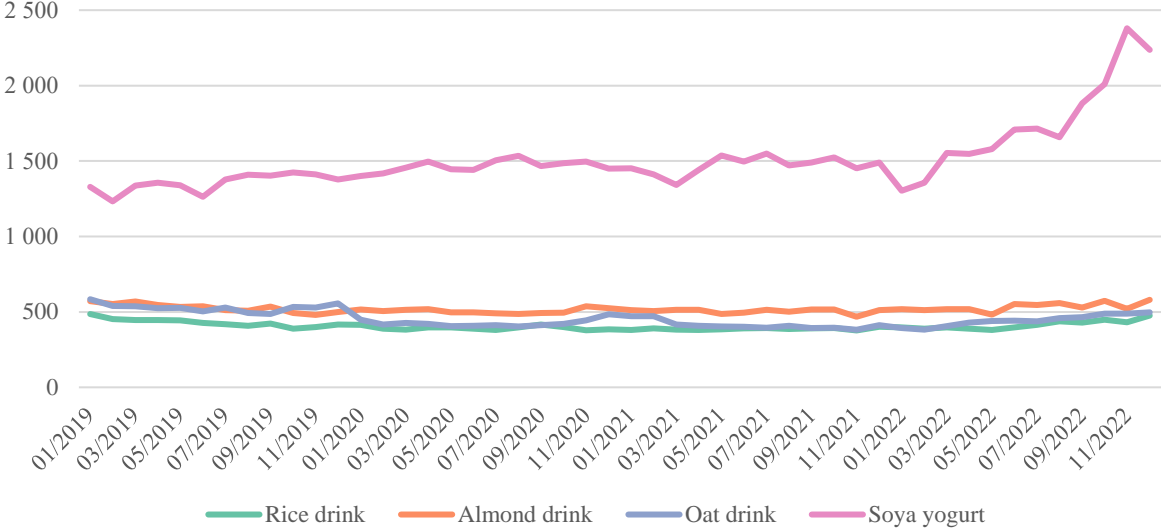
Note: N = 12

Source: own calculation based on corporate data

Plant-based drinks and soy yoghurts

In the case of plant-based drinks and soy yoghurts, retailers’ purchase costs increased only slightly over the period under review, in line with the import prices of domestic distributors. The largest increase was for soy yoghurts (Figure 40).

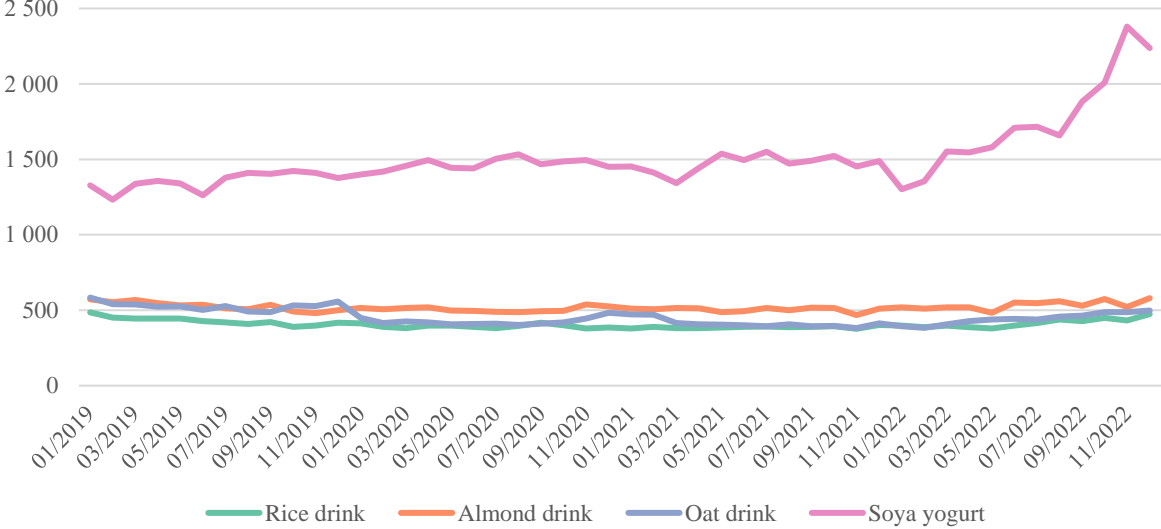
Figure 40. Evolution of average retail procurement prices of plant-based drinks and soy yoghurts (HUF/l or HUF/kg)



Note: N = 5
 Source: own calculation based on corporate data

Retail consumer price developments follow similar trends (Figure 41), it can therefore be concluded that consumer prices were mainly driven by changes in purchase prices.

Figure 41. Average net consumer prices of plant-based drinks and soy yoghurts (HUF/l or HUF/kg)

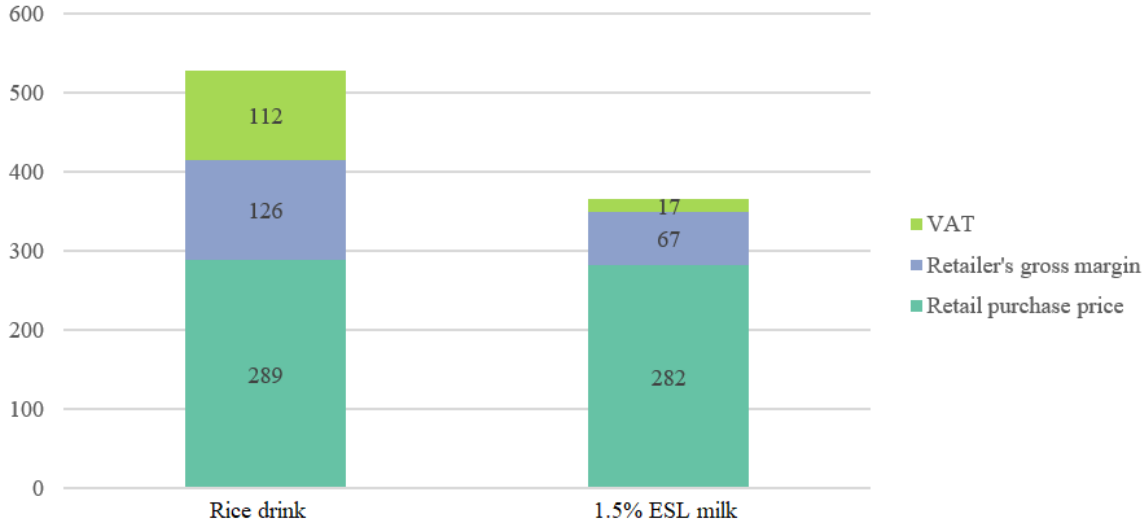


Note: N = 5
 Source: own calculation based on corporate data

At the same time, it is worth comparing the retail pricing of the highest volume plant-based drink, rice drink, and 1.5% ESL milk. Figure 42 shows that the retail purchase prices of rice drink and ESL milk were already very close in 2022. However, the retail margin is significantly higher, almost twice as high for rice drink than for ESL milk. In addition, there is a significant

VAT difference in the gross retail price (5% for milk and 27% for rice drink), which further increases the differences in retail prices. This means that retailers (and the State) make significantly higher profits on plant-based drinks than on ESL milk. Given that for people suffering from various food allergies, replacing cow’s milk is not optional but a necessity, this fact will further increase the already higher expenditure of this group of consumers. This discrepancy is also negative from an environmental point of view, as it is precisely that consumers buying more sustainable products (Figure 3) are forced to pay higher prices, i.e., those whose consumption generates fewer environmental externalities.

Figure 42. Breakdown of gross consumer prices for rice drinks and 1.5% ESL milk in 2022 (HUF/l)

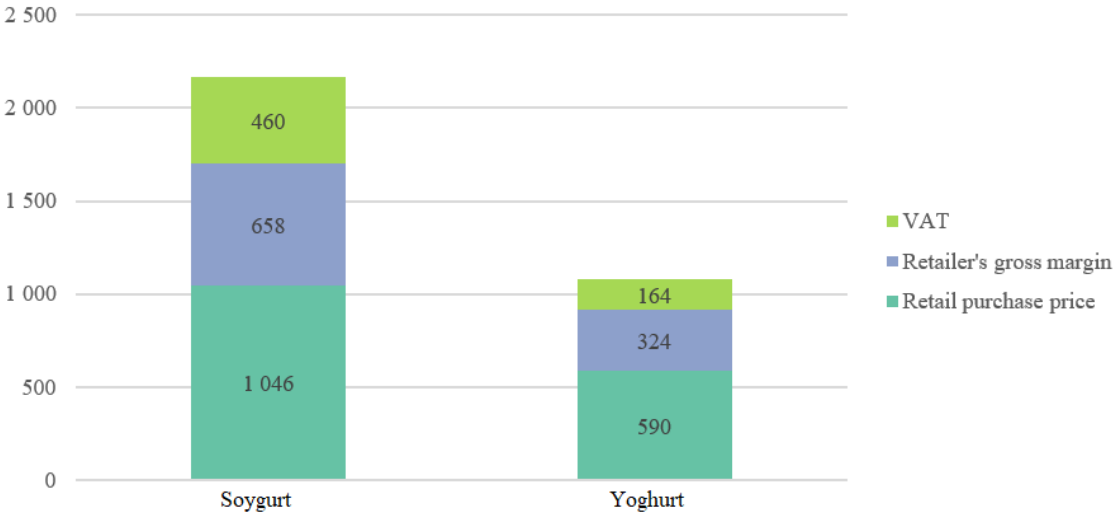


Note: N = 14

Source: own calculation based on corporate data

A similar finding can be made when comparing soy yoghurt and natural yoghurt (Figure 43), although the retailer’s purchase price of soy yoghurt is also significantly higher than for natural yoghurt.

Figure 43. Breakdown of gross consumer prices of soy yoghurt and natural yoghurt in 2022 (HUF/kg)



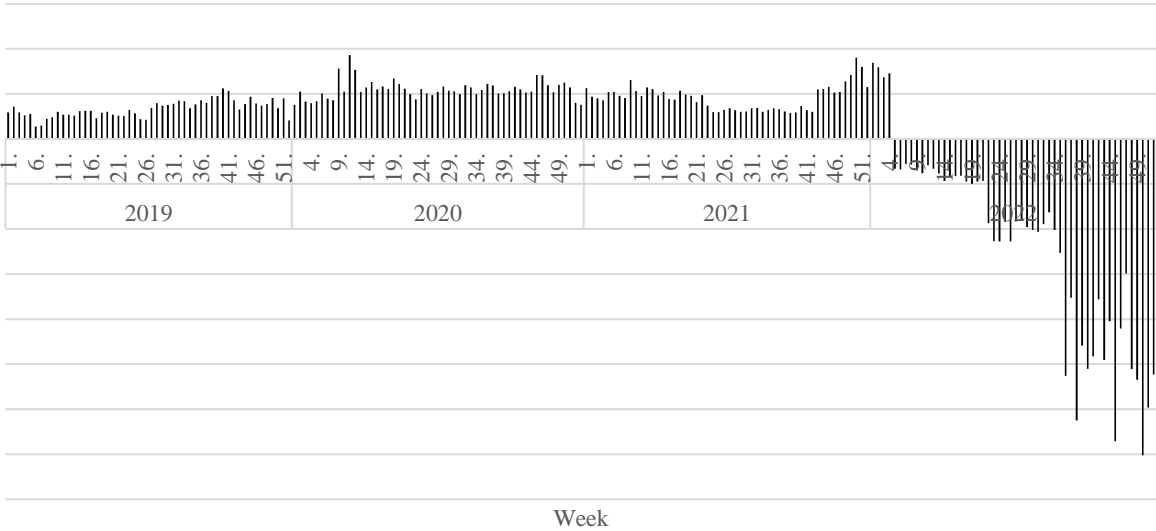
Note: N = 14
 Source: own calculation based on corporate data

Trends in the profitability of food retailers, in particular with regard to Government Decree 6/2022 (I. 14.) (food price cap)

In the earlier parts of this chapter, we have examined the price rates of a specific (standard) product and the gross margins and profitability of the food retail sector on these products under fairly strict assumptions. Despite the general increase in gross margins, the analysis shows that profitability varied considerably from product to product, with some products showing an increase and others showing a decrease in profitability. However, even at the level of dairy products this is not indicative, as the pricing of each product is unique. The situation is further complicated by Government Decree 6/2022 (14 January) (food price cap), which, among other things, capped the price of UHT milk with a fat content of 2.8%. This price maximum was typically lower than the purchase price in 2022, so retailers were recording losses on sales of this product day by day. The more they sold, the greater their losses became. Meanwhile, demand for this product increased very significantly as its price became more and more favourable compared to its direct substitutes (e.g., ESL milk).²⁹ As a result, retailers incurred significant losses on the products affected by the price cap, including UHT milk with a fat content of 2.8%. This is illustrated by Figure 44 using the example of a specific retailer, which was not named for reasons of commercial confidentiality. It shows that, while the retailer had previously achieved a broadly stable gross margin on this product, in 2022 its losses increased week by week and became increasingly significant.

²⁹ Source: <https://24.hu/fn/gazdasag/2023/02/28/arstop-forgalom-vasarlas-tobb-kristalycukor-liszt-tej-csirke-mell-sertescomb-farhat-tojas-burgonya/> (downloaded 14 April 2023)

Figure 44. Gross margin on 2.8% fat UHT milk for a major domestic retailer (HUF million)

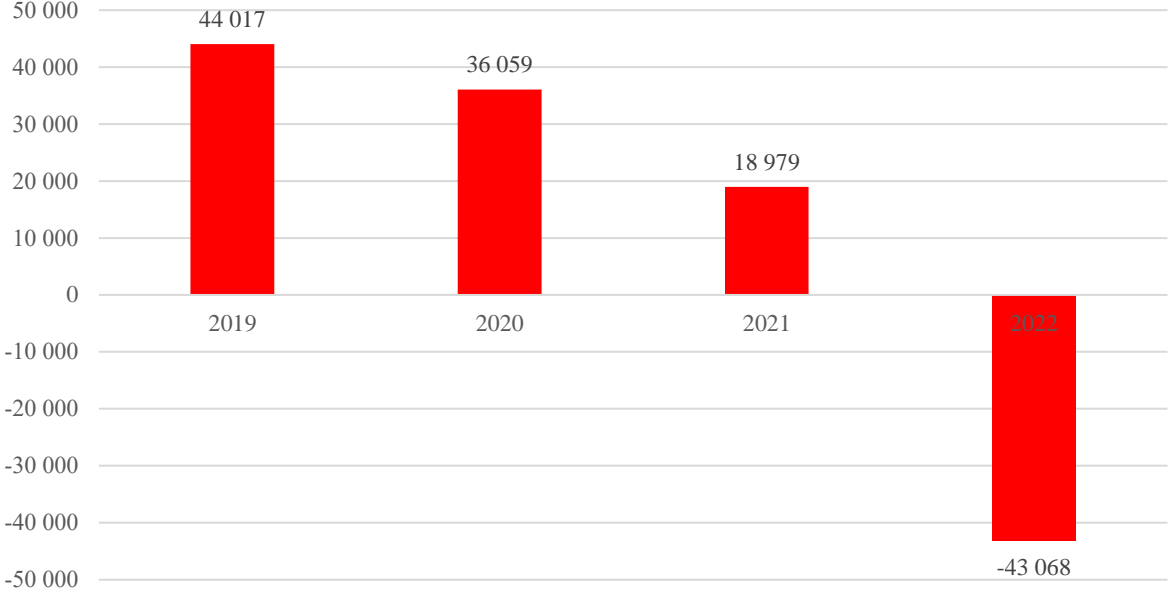


Source: own calculation based on corporate data

The GVH also assessed the overall gross margin of retailers on the products affected by the price cap, which exceeded HUF 25 billion in 2022, based on aggregated data from the six largest retailers.

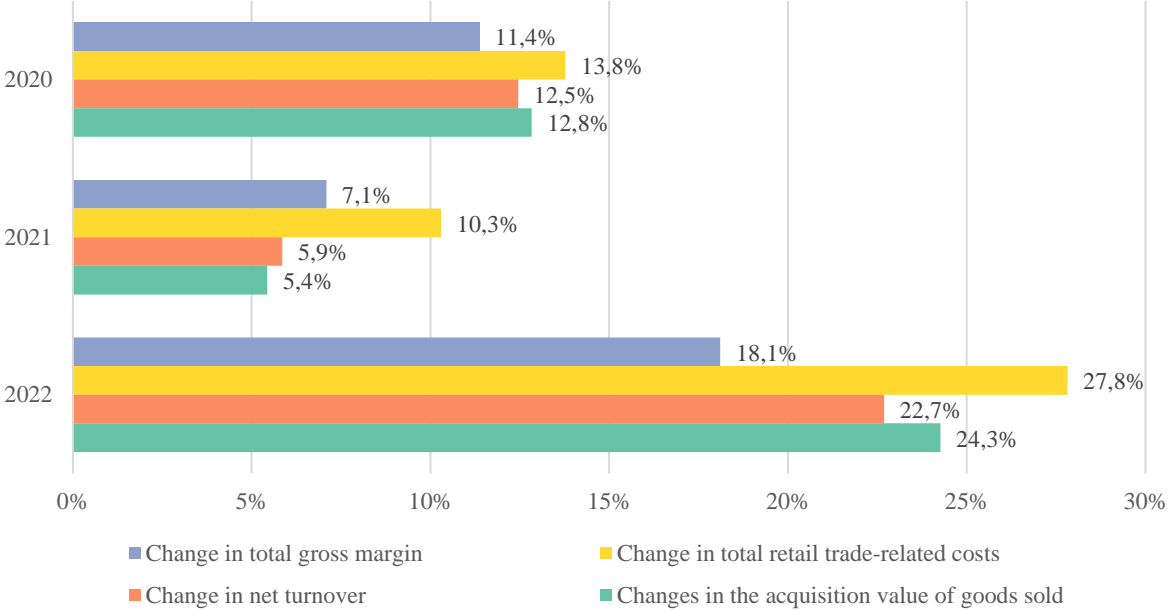
Based on the aggregated data of the 33 retailers surveyed by the GVH, it can be seen that in 2019, 2020 and 2021, they made significant profits in the food and daily consumer goods (FMCG) market, with a total profit of nearly HUF 100 billion over these three years (Figure 45). However, this was only 1.3% of their respective net sales. In 2022, retailers’ gross margins increased significantly less than their retail-related costs (Figure 46). This suggests that the profitability of retailers declined in 2022, and based on the data received, they were loss-making in the FMCG market as a whole (Figure 45) There is of course considerable heterogeneity behind this. Some retailers were able to make a profit in 2022 and some even increased their profits in 2022 - the latter being exclusively smaller retailers operating as franchise partners of a domestic chain.

Figure 45. Annual evolution of aggregate profits of major domestic retailers on food and daily consumer goods (HUF million)



Note: N = 33
 Source: own calculation based on corporate data

Figure 46. Some key retail sales data growth compared to the previous year



Note: N = 33
 Source: own calculation based on corporate data

Based on the data received by the GVH, it can therefore be seen that the retail sector as a whole has not been able to fully spread the losses caused by the price cap over products not affected by the price cap, nor have they fully passed on the increase in their operating costs to their customers. However, there are significant differences behind this aggregate and some traders have been able to increase their profits in 2022. The latter were mainly franchised dealers.

Finally, an important technical note is that Figure 45 do not match the sum of the after-tax results reported in the companies' profit and loss accounts for a number of reasons. For one thing, almost all retailers sell other non-food products, on which they could use their profits to reduce the losses shown here. On the other hand, the profit and loss account also includes several other lines (e.g., results of financial operations, results of sales of fixed assets) which are not reflected in the above figures as they are not closely linked to food sales. The GVH has therefore also examined the evolution of retailers' profit after tax in 2021 and 2022, which shows a similar picture.

It is also worth mentioning that the Dairy Board has stated that the sales share of UHT with a fat content of 2.8% has increased by 75% to the detriment of other milk categories due to the price regulation in 2022. The data collected by AKI therefore shows that the market share of milk at the official price has been taken away from other categories. As a result, dairy processors not producing UHT milk with a fat content of 2.8% may have suffered indirect losses as demand for the milk they produce has fallen. The Dairy Board calls for the removal of the official price provisions for 2.8% UHT milk to avoid a deterioration in the business and professional relationship between processors and retailers and a loss of share for the domestic dairy industry in the consumer liquid milk market.

VIII. Results of the price transmission analysis on the domestic milk product supply chain

Theoretical background of the price transmission analysis

Price transmission analysis is a tool often used to analyse the competitive situation of entire supply chains. The idea is that by looking at the relationship between input and output prices, it is possible to infer which (if any) players have greater market power in each trading contract by analysing the pass-through of costs.

Since the system of price relationships can be extremely complex, price transmission analyses are based on three basic principles. These are, following Rapsomanakis et al. (2003), the followings:

- The co-movement of prices and the spill-over of price changes from one stage of the supply chain to another.
- Examining the speed and dynamics of price volatility.
- Analysis of the symmetric nature of price changes. In short, this means whether or not price rises and falls in one market are reflected equally quickly and completely in the price of another market.

Vertical price transmission examines price developments between actors at different stages of the supply chain. This involves monitoring prices and examining price developments from the producer of the raw material, through processors and wholesalers, to the retailer selling and finally, to the final consumer.

Conforti (2004) has grouped the factors affecting price transmission and its symmetry into six parts. Of these, vertical price transmission may be influenced by the distribution of market power, increasing returns to scale of production and product differentiation.

Meyer and von Cramon-Taubadel (2004), however, point out that in the case of oligopolistic market structures, both positive and negative asymmetries in price transmission can occur. For example, if firms fear a decline in their market share, decreases in their input prices may be reflected in output prices faster than price increases, leading to a negative asymmetry.

An opposite example is when companies look at their profit margins. When input prices fall, profit margins increase, which is more favourable to firms, so they are interested in slower adjustment of output prices. When input prices rise, the opposite process takes place, so that a positive price transmission asymmetry may arise.

In addition to these, the role of perceptions is also important. If firms expect that other firms will immediately reflect a decrease (increase) in input prices in their output prices, but not a price increase (decrease), then the firm will behave accordingly. In such cases, a negative (positive) asymmetry may arise when looking at the market as a whole.

Another important group of factors affecting price transmission is the structure of costs. In sectors with high fixed costs, companies may aim to make the best possible use of capacity. In the case of rising input prices, some reduction in profit margins may still be acceptable to firms in exchange for higher capacity utilisation, which may result in negative price transmission.

On the other hand, the direct cost of price changes (menu costs) can be significant, leading to price stickiness. In such cases, firms react more quickly to input price increases, as the fall in their profits may reach a threshold more quickly where it is worth absorbing the cost of the price change. In the case of price decreases, the incentive to do so is lower, so that positive price transmission can occur.

In addition, the evolution of demand is also important. Positive demand shocks can lead to price increases, while negative shocks can lead to companies increasing their stocks rather than reducing their prices.

This brief summary shows that price relationships are influenced by a number of factors, often with conflicting effects. Moreover, the relationship between prices may differ in the short and long run. In the long run, the trend is towards market equilibrium, so that the effects of the factors influencing short-term price developments largely disappear.

Results of price transmission analyses in the dairy sector

Fałkowski (2010) examined the Polish dairy market between 1998 and 2006, but only investigated retail and producer prices. His results show that in this period there was an asymmetric price transmission in the long and short run, indicating a high bargaining power of the demand side vis-à-vis the producer side. It expects that the raw milk shortage due to EU milk quotas could shift the asymmetry in the opposite direction, i.e., significantly increase the bargaining power of the producer side.

Bakucs et al. (2012) compared the price transmission of the Polish and the Hungarian milk supply chains for a similar period, 1995–2007. According to their error correction model with structural breaks, the Polish milk supply chain was characterised by asymmetric price transmission in the above period, while the Hungarian one was characterised by symmetric price transmission in both the long and short term. The authors considered the main reasons for this difference to be, on the one hand, the different development of the dairy chain in the two countries during the regime change and, on the other hand, the greater presence of foreign working capital in this sector in Hungary, which is often associated with a high degree of innovation and efficiency improvements.

Kharin et al. (2017) studied the supply chain of the Slovak dairy industry between 2010 and 2016. The abolition of the EU milk quotas in 2015 was prominent in their analysis. Based on their error correction model, they found that in the period before the abolition of quotas, the demand side drove price developments in Slovakia, i.e., the retail side reacted asymmetrically to changes in producer prices. In contrast, a symmetric price transmission between producer

and processor prices was observed. The authors argue that this is because the number of producers has been reduced following the abolition of the quota, and the level of concentration has increased, which may have increased the bargaining power of producers *vis-à-vis* processors. In addition, the authors believe that the creation of producer interbranch organisations during this period may also have contributed to the increase in producers' bargaining power.

Antonioli and Santeramo (2022) investigated the impact of two reforms of the EU Common Agricultural Policy (2003, 2007) on the Italian dairy industry using an error correction model for the period 2000–2015. Both agricultural policy reforms had a market liberalisation effect in the Italian dairy industry, which previously relied heavily on state subsidies. The authors found that price transmission was asymmetric in the subsidy-based period, while after the reforms price information passed more efficiently through the different levels of the vertical.

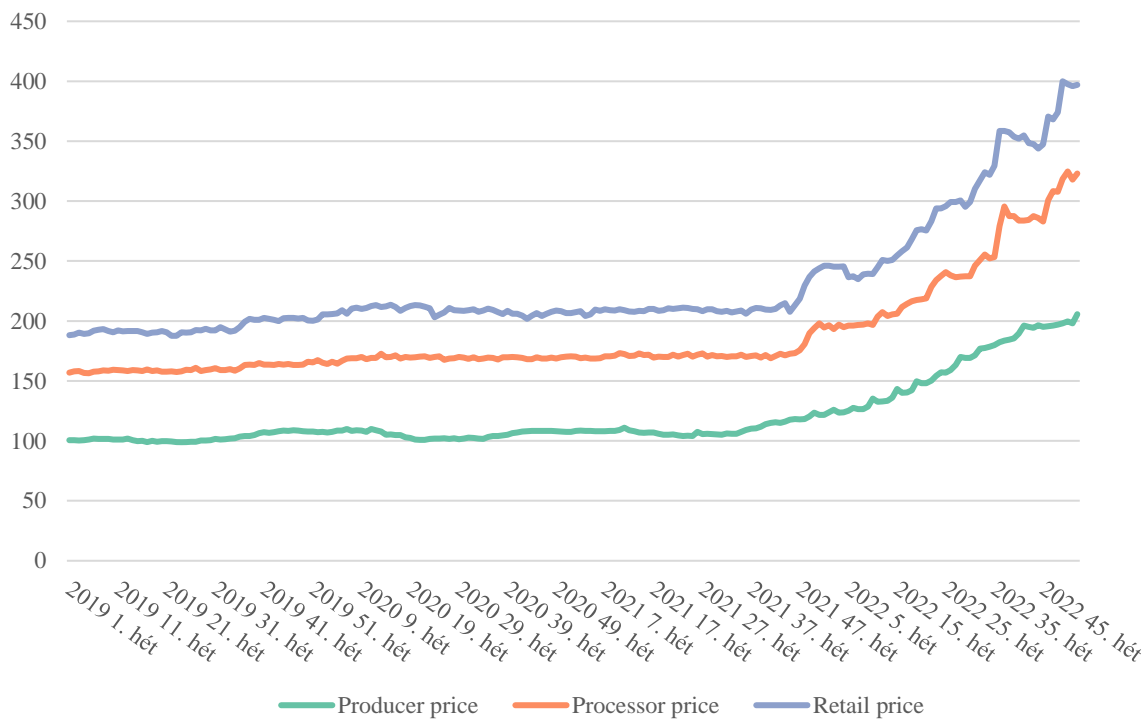
Data, methodology and results

The data used for the price transmission analysis were provided by the undertakings in this sector inquiry. After aggregating these corporate-level data by the level of the supply chain, the analysis examines the relationship between three time series between the first week of 2019 and the last week of 2022 (Figure 47):

1. the average raw milk producer prices;
2. the average ex-factory prices of ESL milk with 1.5% and 2.8% fat content at processor level;
3. at retail level, the average consumer prices of ESL milks with a fat content of 1.5% and 2.8%.

In order to investigate the specificities of the milk market and to avoid modelling inflation in the analysis, the time series data were deflated by the value of the monthly consumer price index evenly distributed over the weeks. In addition, we have used the natural logarithm of prices throughout the econometric analysis to be able to interpret our results as price changes rather than absolute prices.

Figure 47. Deflated time series of average prices for each level of the milk supply chain (HUF/l)



Source: own calculation based on corporate data

To briefly introduce the method, it is necessary to introduce some basic concepts. When analysing the relationship between time series data, special treatment is required for time series where spurious regression is suspected. The term spurious regression refers to the discovery of a strong significant co-movement between two time series, when this co-movement is not caused by a real relationship between the data, but by a stochastic trend in the time series data.³⁰ This means that local, short-term co-movements in the time series give the impression that there is a strong long-term trend between the processes. These periodic co-movements can be treated reliably if the time series are so-called stationary time series, i.e., time series where each data point is located around a constant expected value with a uniform standard deviation.

However, if the data series are non-stationary, i.e., there is a risk of spurious regression, then a true long-run relationship between the data series exists if they are cointegrated. Two time series are cointegrated if there is a linear combination of them that results in a stationary process, i.e., there is a long-run relationship between the data series from which they diverge only slightly at most and return to equilibrium over time.

By carrying out appropriate statistical tests (Augmented Dickey-Fuller unit root test), we ascertained whether the time series we were investigating were stationary processes or whether cointegration should be investigated. The ADF tests show that none of the time series under investigation are stationary, these are so-called unit root processes. This is, moreover, clearly visible in Figure 47.

³⁰ For extreme but real examples of this phenomenon, see: <https://tylervigen.com/spurious-correlations> (downloaded 14 April 2023).

The tests for cointegration relationship (Johansen trace test and maximum eigenvalue test) clearly show that all three time series are pairwise cointegrated (Table 1, Table 2 and Table 3). This is not surprising, as the three time series belong to the supply chain of the same product, so we expect a real long-run equilibrium relationship between them.

Table 1. Johansen trace test statistics between producer and retailer prices

H0	Test statistic value	10% critical value	5% critical value	1% critical value
$r \leq 1$	3,05	7,52	9,24	12,97
$r = 0$	26,17	17,85	19,96	24,6

Table 2. Johansen trace test statistics between producer and processor prices

H0	Test statistic value	10% critical value	5% critical value	1% critical value
$r \leq 1$	2,27	7,52	9,24	12,97
$r = 0$	27,25	17,85	19,96	24,6

Table 3. Johansen trace test statistics between processor and retailer prices

H0	Test statistic value	10% critical value	5% critical value	1% critical value
$r \leq 1$	6,67	7,52	9,24	12,97
$r = 0$	32,66	17,85	19,96	24,6

Once the cointegration relationship exists, we can examine how different levels of the supply chain react to each other's price signals. For cointegrated time series data, it is useful to build a Vector Error Correction Model (VECM). The estimation method of the VECM is based on the idea that if there is a cointegration relationship between two time series, the deviation from this long-run equilibrium (the error term of the process) will disappear over time, and the long-run equilibrium will be restored. The error term therefore disappears over time.

To operationalise this, if we set up a model with the output variable being the short-run (weekly) changes in one process (i.e., the first difference of the variable) and the explanatory variables being the short-run changes in the other process and the error correction term (ECT) mentioned above, then our regression coefficient for the ECT, the so-called error correction factor, shows how quickly a given error term (deviation from equilibrium) is corrected. To test the symmetry of the price transmission, the error term needs to be split into positive and negative parts (ECT+ and ECT-), and if their estimated parameters are equal, the price transmission is symmetric; if they differ significantly, the price transmission is asymmetric, since the positive and negative error terms do not correct at the same rate. This allows us to determine how and how quickly each level of the supply chain reacts to price shocks from other levels.

Before building the model, we need to consider the causal relationships between the three sets of time series data. However, according to Maddala (2001), in simultaneous systems, causal relationships cannot be investigated without *a priori* assumptions. Therefore, we can investigate the so-called Granger causality, which in fact only implies that one time series can forecast the

other, but not true causality. The Granger causality is therefore a measure of which data series precedes the other. However, since we are looking at data representative of successive levels of the supply chain, it can also provide some guidance for the analysis of the starting point of price shocks.

If the current value of a time series can be significantly explained by the past value of another time series, then one process can be said to Granger-cause the other. By conducting the appropriate Granger causality tests, we can conclude that the producer price Granger-cause the processor price, and the retailer price Granger-cause the processor price. No direct Granger causality between the producer and retailer levels can be detected using the weekly data, but as these two levels are not directly linked, this is not a surprising result (Table 4). In the presence of a significant causal relationship between the two, it is meaningful to build VECM models.

Table 4. Granger causality test results

Granger cause	Granger caused	F-test value	p-value	Number of lags
Producer price	Processor price	2.302	0.036	6
Processor price	Producer price	1.220	0.297	6
Producer price	Retail price	1.967	0.085	5
Retail price	Producer price	1.025	0.404	5
Retail price	Processor price	16.416	0.000	3
Processor price	Retail price	0.823	0.482	3

For these two Granger-causal relations, we have built special, so-called asymmetric VECM models. The essence of asymmetric VECM is that they can separate the response of the output variable to positive and negative price shocks, i.e., it is possible to determine whether one price series reacts differently to a decrease or an increase in another price series. If the response to these two changes is identical, the price transmission can be called symmetric (otherwise asymmetric).

Table 5. Asymmetric VECM for the relationship between producer price and processor price

Explanatory variable	Estimated parameter	Standard error	t-value	p-value	Significance
Constans	0,000	0,001	0,095	0,924	
Producer price (t-1)	-0,074	0,100	-0,739	0,461	
Producer price (t-2)	-0,021	0,098	-0,218	0,827	
Producer price (t-3)	0,024	0,094	0,258	0,797	
Producer price (t-4)	-0,165	0,092	-1,794	0,074	*
Producer price (t-5)	0,123	0,097	1,269	0,206	
Producer price (t-6)	-0,124	0,101	-1,228	0,221	
Processor price (t-1)	0,151	0,076	1,996	0,047	**
Processing price (t-2)	0,015	0,075	0,198	0,843	
Processing price (t-3)	0,072	0,073	0,980	0,329	
Processing price (t-4)	-0,071	0,072	-0,986	0,325	
Processing price (t-5)	0,051	0,072	0,714	0,476	

Explanatory variable	Estimated parameter	Standard error	t-value	p-value	Significance
Processing price (t-6)	0,087	0,072	1,213	0,227	
ECT+	-0,082	0,062	-1,314	0,190	
ECT-	-0,255	0,071	-3,578	0,000	***
Asymmetric price transmission test: H0: ECT+ = ECT-					
Test statistics	p-value		Significance		
	3,018		0,084	*	

For the output of the models, the most relevant coefficients are the error correction terms (ECT+ and ECT-) describing the effect of positive and negative price shocks. Table 5 shows that the coefficient of ECT- is negative and significant. This implies that when the margins of the processor level decrease, i.e., the processors' profits drops, the processor level corrects this change and the system returns to equilibrium over time. However, the ECT+ is not significant, from which we conclude that when the processor's margin rises, the processor level has not corrected the difference in a significant way. For the test of the symmetry of the response to the two margins, at the 5% significance level, we cannot reject that the two effects are symmetric, but we cannot ignore that only the negative error correction term is statistically significant. In addition to this, we can define the half-life of the error correction factor, which shows the average number of periods over which a given price shock is halved. The formula: $t_{half-life} = \frac{\ln(0,5)}{\ln(ECT+1)}$. Here, for the significant ECT- this half-life is 2.71, i.e., the processing level corrects on average roughly half of the narrowing of the margin in two to three weeks.

Table 6. Asymmetric VECM for the relation between retail price and processor price

Explanatory variable	Estimated parameter	Standard error	t-value	p-value	Significance
Constans	-0,002	0,002	-1,433	0,153	
Retail price (t-1)	0,403	0,090	4,474	0,000	***
Retail price (t-2)	-0,011	0,088	-0,120	0,905	
Retail price (t-3)	0,220	0,084	2,619	0,010	***
Processor price (t-1)	-0,153	0,093	-1,650	0,101	,
Processing price (t-2)	-0,138	0,090	-1,531	0,127	,
Processing price (t-3)	-0,161	0,079	-2,030	0,044	**
ECT+	0,169	0,130	1,303	0,194	
ECT-	-0,476	0,124	-3,827	0,000	***
Asymmetric price transmission test: H0: ECT+ = ECT-					
Test statistics	p-value		Significance		
	9,551		0,002	***	

The relationship between retailer and processor level is illustrated by the second model (Table 6). The error correction terms are similar here, but the causal relationship is in a different direction. Here again, the ECT- is negative and significant, so when the processor price deviates in a negative direction from the long-run equilibrium, i.e., when the margin between the retail price and the processor price *increases*, the processor level corrects for this deviation over time and reduces the retail margin to the equilibrium level. However, under the

insignificant ECT+, when the processor price deviates in a positive direction from the equilibrium level, i.e., when the margin between the retail price and the processor price *decreases*, this deviation is not corrected. Here, the asymmetry test also clearly shows that the response of the processing level to two price shocks cannot be considered symmetric. As in the previous model, we can also find here the half-life of the significant error correction term, which is 1.07 weeks, so that the processing level corrects on average about half of the reduced margin in about one week.

Interpretation of the results

Based on the price transmission analysis carried out, some important conclusions can be drawn regarding the price movements of Hungarian milk supply chain and the behaviour of market participants. First, the analysis shows that the increase in producer prices is directly and rapidly reflected in the ex-factory prices of processors, so that the price change of raw milk has a significant impact on dairy prices.

On the other hand, both models show that the processing level corrects for unfavourable margin changes. When producer prices increase, and thus processors' margins narrow, they also increase their ex-factory prices within a few weeks. At the same time, when consumer (retail) prices are higher, processors also raise their prices in a very short period of time, just one or two weeks.

To interpret the latter accurately, processor's ex-factory prices are typically finalised during negotiations with retailers, so this result actually suggests that retailers take into account processor and consumer prices at the same time, essentially aligning them, i.e., adjusting consumer prices to processor price changes. This can also be interpreted as retailers constantly looking for sources of supply from which they can obtain procurement prices that still allow them to obtain acceptable consumer prices, which is a favourable process from a consumer point of view.

IX. The role of the Milk Interbranch Organisation and Dairy Board in the price movements of the milk supply chain

An important player in the domestic dairy sector is the Milk Interbranch Organisation and Dairy Board (hereinafter: Dairy Board), whose activities have a direct impact on the sector subject to the accelerated sector inquiry. Therefore, the GVH has addressed several questions to the organisation and sought to explore in more detail its operations and certain elements of its activities.

The analyses presented above show that the price of raw milk is directly and strongly correlated with the prices that consumers see on the shelves of domestic stores for each dairy product. Consequently, the GVH should have sought in the course of the procedure, within the framework of the accelerated sector inquiry, to identify the market circumstances which may influence the raw milk prices of domestic dairy farmers. These factors are described in more detail in Chapter V of the report, but the Dairy Board also plays a very important role in the development of domestic raw milk prices through the publication of the so-called base price forecast of raw milk, and the GVH devoted more attention to understanding its activities in this respect during the procedure.

Brief introduction to the Milk Interbranch Organisation and Dairy Board

The Milk Interbranch Organisation and Dairy Board is a professional public organisation set up and run by the voluntary decision of dairy farmers, processors, retailers, educational and scientific institutions, companies and cooperatives and their organisations. Its activities correspond to those of an interbranch organisation in the European Union and in Hungary in terms of specific agricultural legislation. Its aims are to regulate the system of market relations representing the processes of the domestic dairy market, to make extreme market situations and conflicts of interest manageable, and to create consensus between the various market players. The organisation also aims to ensure that market players in the sector have up-to-date knowledge in order to plan economic activity, increase domestic consumption of milk and dairy products and improve the social image of the sector.

Its members are legal persons, unincorporated organisations and natural persons (essentially producers, processors, distributors and retailers) interested in the dairy sector, who have voluntarily joined.

The organisation and departments of the Dairy Board include the Delegated Assembly, the Producers', Processors' and Traders' Sections, the Bureau, the Audit Committee, the Price Committee, the Secretariat, the Regional Assemblies and the general proposing and opinion-forming bodies.

The Delegated Assembly is the main governing body of the Dairy Board and is composed of representatives of the members. Delegates are elected from among the producer, processor and trader members for a three-year fixed term. The total number of members is 60, of which 25 are from the producer level, 25 from the processor level and 10 from the trader level.

Within the Delegate Assembly, the producer, processor and trader delegates form Sections. They shall meet at least twice a year and the Sections shall nominate the Presidium Members to the Delegated Assembly.

The decision-making body of the Dairy Board is the Bureau. Its main task is to coordinate the activities of the Dairy Board between two Delegated Assemblies. Its members are elected by the Delegated Assembly for a three-year term. The total number of members is 22, eight of whom represent the dairy farmers' interests, eight the dairy processors, four the traders and one each from the dairy farmers' and dairy processors' associations.

The leading officers of the Dairy Board are the President, the Co-President, the members of the Bureau and the Executive Director.³¹

The base price forecast prepared by the Dairy Board

Since 2011, the Presidency of the Dairy Board has published a periodically revised forecast of the base price of raw milk for a given quota year in a Self-Regulating (Interbranch) Agreement (hereinafter referred to as the Agreement), as it considers that the publication of the forecast contributes to maintaining market balance, to more stable contractual relations and to improving market transparency. The Bureau proposes that operators who sign up to the Agreement should *“accept and include in their contracts that operators in the dairy sector will set the clearing price for the purchase of raw milk at a maximum annual average deviation of +/- 2.5% in their contracts from the base price proposed by the Bureau, depending on the market variations within the year.”*³²

Accession to the Agreement adopted by the Bureau is open and voluntary, and operators can decide independently to join by means of a written declaration. 15 operators have so far joined the Agreement, 11 of which are currently active on the dairy market.³³

According to the Dairy Board, the fundamental aim of the Agreement is to prevent the dairy market from panic and market turmoil caused by rapid, drastic price changes, which could lead to a reduction in production, animals being sent to slaughter, farm closures and job losses.³⁴

The basic price is adopted by the Bureau by a qualified majority (minimum 66%). The Price Committee, set up by the Bureau, shall review the reality of the annual basic price on a quarterly basis, taking account of market conditions, and shall propose any changes that are justified.

The base price forecast is the forecasted price of raw milk for one year in advance, which is expected to be the average price in the following year. The base price forecast is the projection of the change in the average (historical) raw milk price officially collected by AKI on the annual average of the base price (subsequently published on the annual base price of the previous year), taking into account the change in retail consumer prices of the main dairy products (1.5% and 2.8% fat milk, Trappist cheese) and the change in the market prices of the main fodder crops

³¹ <https://tejtermek.hu/cikkek/szabalyzatok/2021-februar-8-tol-hatalyos-alapszabaly> (downloaded 14 April 2023)

³² <https://tejtermek.hu/mi-az-alapar> (downloaded 14 April 2023)

³³ <https://tejtermek.hu/csatlakozasi-lehetoseg> (downloaded 14 April 2023)

³⁴ <https://tejtermek.hu/mi-az-alapar> (downloaded 14 April 2023)

(maize, sunflower). The base price forecast is also heavily influenced by the so-called environmental indices, which are multipliers of between 0.9 and 1.1, as voted by the members of the Price Committee, and can therefore reduce or increase the base price forecast.

The annual base price is reviewed quarterly by the Price Committee and corrections are made based on the annual evolution of the Euro–HUF exchange rate, the official EU-27 annual average milk price change in Brussels, the periodic price change of the LTO price³⁵ and the periodic change of the Italian spot price. In addition, in this case there is also a subjective factor (economic environment index).³⁶

As regards the data used to prepare the base price forecast, according to the data submitted to the GVH, the Dairy Board does not have its own professional data collection, but it does prepare statements, graphs and analyses from data collected by other authorities and bodies. These are published on a monthly basis on its website (e.g., market situation analysis, graphs showing market and price data) or sent to its members. All dairy processors, milk producers exporting raw cow's milk, milk wholesalers and milk traders with a net turnover from milk sales of more than HUF 25 million in Hungary are obliged to provide the data required by law.³⁷ The data must be provided on a monthly basis and retailers are required to provide data on a three-monthly basis. Data on raw materials must be sent to AKI and data on finished products to the NFCSO, which processes the data under the supervision of the Dairy Board. The aggregated data and the average data are sent to the Dairy Board by the NFCSO on a monthly basis. These data are published on the Dairy Board's website.

From a competition law point of view, the base price forecast developed by the Dairy Board is in practice a public professional price indication of the producer price of raw milk sold to domestic milk processors. However, the members who voluntarily join the agreement can only deviate from this recommendation to a minimal extent (within a margin of $\pm 2.5\%$) and it can also serve as a price centre or anchor for other members of the Dairy Board, so its impact can be significantly greater than the number of members.

The methodology for base price forecast needs to be reviewed from a competition law perspective, especially in a high inflation environment. On the one hand, the change in retail consumer prices of certain dairy products (milk, Trappist cheese) in the previous year also influences the current year's recommendation on the price level of raw milk. In this way, the forecast methodology, as it stands, directly links past increases in consumer prices to the proposed increase in raw milk prices. This could imply a higher future increase in raw milk prices in a market environment with particularly high inflation and steep increases in consumer prices of food products. At the same time, it should also be seen that an increase in the price of raw milk, as already recorded in the above analyses, will impact the price of products at all levels of the dairy supply chain and lead to price increases. On the other hand, a similar situation applies to the inclusion in the formula of the change in raw milk prices in the previous year.

³⁵ <https://www.zuivelnl.org/en/milkprices/historic-overview> (downloaded 14 April 2023)

³⁶ <https://tejtermek.hu/download/603/alapar-modszertanpdf> (downloaded 14 April 2023)

³⁷ AM Decree No 4/2020 (28.II.) on the extension of the market organisation measure on the obligation to report to the Dairy Board

This can also lead to permanent inflation, since if the increase in raw milk prices was high in the previous year, the formula will predict an increase in the following year, which is then incorporated into market expectations. Third, subjective environmental indices can be used to artificially increase the forecast. According to the data provided by the Dairy Board, since 2019 none of the environmental indices has been below 1, so these subjective factors have been used to increase the forecasted price of raw milk. Finally, it is worth mentioning that the biggest cost element for cattle farms, the price of feed (which accounts for more than half of their total costs), is only included in the price formula with a weighting of 15%.

In the light of the above, the GVH suggests two aspects to consider when reviewing the price formula. On the one hand, the price formula will lead to a deterioration of the competitiveness of domestic dairy producers already in the medium term if it leads to higher raw milk prices than the equilibrium and encourages the retail sector to purchase cheaper imported dairy products. This is supported by the fact that in December 2022, for example, the price of raw milk was already cheaper in France than in Hungary. On the other hand, the price formula leads to a permanent price increase, i.e., higher consumer prices for dairy products, which may also fuel inflation.

X. International outlook

The significant increases in food prices, including dairy prices, observed in Hungary were not confined to Hungary alone. The GVH therefore sought to investigate these phenomena not only in isolation, but also to understand the changes in food prices in the European Union and the responses of national competition authorities and governments to these changes, in addition to examining the domestic developments in detail.

Changes in the consumer price index and trends in raw milk prices and foreign trade

The GVH also considered the rise in food prices worth examining in an international comparison, as high inflation is found throughout Europe, although to varying degrees across regions and countries. The sources of the statistical statements on food prices in Europe are Eurostat data, which show international trends compared with the same period of the last three years.

The annual rate of change in the Harmonised Index of Consumer Prices (HICP) shows the extent to which prices of consumer goods and services have changed compared to the same period in the previous year. This data makes inflation rates comparable across countries because they are set according to a harmonised definition by the national statistical offices (data published by Eurostat).³⁸ The HICP includes a number of sub-categories, of which food is only one. Table 7 contains data specifically for the food segment.

Table 7. Annual change in the Harmonised Index of Consumer Prices (HICP) food category by EU country

Country	December 2020	December 2021	December 2022
Austria	3,1	1,6	16,3
Belgium	1,7	1,4	15,7
Bulgaria	2,1	8,9	27,0
Cyprus	0,4	1,0	12,2
Czech Republic	0,2	4,4	27,2
Denmark	0,3	1,9	15,6
Estonia	-0,2	6,1	30,8
Finland	-0,3	1,3	16,5
France	1,3	1,5	13,1
Greece	0,9	4,5	15,6
Netherlands	0,7	2,6	17,0
Croatia	-1,1	8,5	19,7
Ireland	-1,1	1,2	12,1
Poland	0,4	8,2	21,2
Latvia	1,1	7,9	29,4
Lithuania	0,0	11,7	33,5
Luxembourg	2,1	2,4	11,1
Hungary	4,6	8,3	49,6
Malta	1,3	5,4	14,1

³⁸ <https://ec.europa.eu/eurostat/web/hicp/overview?language=hu#> (downloaded 14 April 2023)

Country	December 2020	December 2021	December 2022
Germany	0,5	5,9	20,5
Italy	0,9	3,0	13,3
Portugal	1,6	3,0	20,4
Romania	2,9	7,0	23,0
Spain	1,1	4,8	15,9
Sweden	0,8	1,7	18,9
Slovakia	0,6	6,3	29,0
Slovenia	0,7	4,1	19,2

Source: https://ec.europa.eu/eurostat/databrowser/view/PRC_HICP_MANR_custom_4826878/bookmark/table?lang=en&bookmarkId=8089dbc9-3b2f-4ab9-bfd2-23d2aa192d04 (retrieved 14 April 2023)

Since raw milk is the basis for the production of dairy products, an essential part of this accelerated sector inquiry is to examine the price evolution of raw milk in the EU-27. Table 8 illustrates the evolution of raw milk prices over the last four years.

Table 8. Evolution of raw milk prices by country (EUR/100 kg raw milk)

Country	December 2019	December 2020	December 2021	December 2022
Austria	37,31	41,41	44,16	59,78
Belgium	35,36	32,59	45,05	58,13
Bulgaria	31,75	32,47	36,77	51,75
Cyprus	58,45	58,75	58,47	64,33
Czech Republic	34,25	32,51	38,00	54,28
Denmark	34,80	33,73	42,49	61,45
Estonia	31,32	29,60	35,78	54,42
Finland	39,02	39,58	41,91	55,18
France	37,57	37,04	39,93	49,51
Greece	38,89	38,88	42,99	56,91
Netherlands	36,41	35,19	43,72	62,51
Croatia	34,35	34,43	35,23	55,89
Ireland	36,52	37,49	48,46	69,34*
Poland	33,33	34,69	40,18	59,39
Latvia	30,10	29,54	39,71	48,33
Lithuania	30,62	31,62	42,85	50,94
Luxembourg	N/A	N/A	N/A	N/A
Hungary	32,64	30,70	33,94	54,55
Malta	52,36	51,37	62,26	61,67
Germany	35,29	35,11	42,25	61,72
Italy	38,70	35,90	39,50	57,40
Portugal	30,77	30,68	31,89	54,85
Romania	32,98	32,43	35,92	58,56
Spain	32,82	32,91	35,34	57,96
Sweden	36,08	37,93	42,29	58,43
Slovakia	33,13	32,38	35,47	51,38
Slovenia	34,16	31,34	35,33	55,40

Note: * November 2022 data.

Source: <https://agridata.ec.europa.eu/extensions/DashboardRawMilk/RawMilkPrices.html> (downloaded 14 April 2023)

The price evolution of raw milk is illustrated by the percentage change compared to the same period last year. Table 9 shows the evolution of raw milk prices over the last three years.

Table 9. Annual evolution of raw milk prices by EU country (%)

Country	December 2020	December 2021	December 2022
Austria	10,99	6,64	35,37
Belgium	-7,83	38,23	29,03
Bulgaria	2,27	13,24	40,74
Cyprus	0,51	-0,48	10,02
Czech Republic	-5,08	1,89	42,48
Denmark	-3,07	25,97	44,62
Estonia	-5,49	20,88	52,10
Finland	1,44	5,89	31,66
France	-1,41	7,80	23,99
Greece	-0,03	10,57	32,38
Netherlands	-3,35	24,24	42,98
Croatia	0,23	2,32	58,64
Ireland	2,66	29,26	43,09*
Poland	4,08	15,83	47,81
Latvia	1,86	34,43	21,71
Lithuania	3,27	35,52	18,88
Luxembourg	N/A	N/A	N/A
Hungary	-5,94	10,55	60,72
Malta	-1,89	21,20	-0,95
Germany	-0,51	20,34	46,08
Italy	-7,24	10,03	45,32
Portugal	-0,29	3,94	72,00
Romania	-1,67	10,76	63,03
Spain	0,27	7,38	64,01
Sweden	5,13	11,49	38,17
Slovakia	-2,26	9,54	44,85
Slovenia	-8,26	12,73	56,81

Note: * In 2022, the data are calculated in November, not December.

Source: <https://agridata.ec.europa.eu/extensions/DashboardRawMilk/RawMilkPrices.html> (downloaded 14 April 2023)

The data shows that in 2022, Hungary will have the 4th highest increase in raw milk prices of the 27 EU Member States surveyed, with France, the Czech Republic and Slovakia among the countries where raw milk is cheaper than in Hungary.

The foreign trade balance of raw milk is also an important indicator of the dairy market in each Member State. Those countries where imports of raw milk exceed exports in the year under review need imports. Table 10 illustrates the volume of raw milk exports and imports in each EU Member State over the last three years.

Table 10. Evolution of foreign trade volumes of raw milk by EU country (tonnes)

Country	2020		2021		2022	
	Export	Import	Export	Import	Export	Import
Austria	78 291	19 860	60 867	14 266	44 353	12 265
Belgium	452 502	52 383	463 060	37 595	446 356	39 763
Bulgaria	10 081	1 353	11 464	3 788	11 287	11 147
Cyprus	25 048	684	23 956	586	25 165	512
Czech Republic	47 469	1 560	52 283	1 004	42 825	1 471
Denmark	269 210	31 142	264 986	35 707	234 558	48 301
Estonia	6 285	155	4 127	21	3 826	44
Finland	73 646	473	71 232	206	65 342	175
France	966 836	81 409	995 516	124 759	868 276	136 732
Greece	61 669	3 807	63 576	2 294	63 000	1 603
Netherlands	920 175	102 042	878 306	84 419	868 558	85 350
Croatia	37 391	13 584	31 394	16 247	37 734	10 168
Ireland	776 315	801 384	747 267	688 965	808 168	807 072
Poland	613 927	31 367	611 987	12 989	515 743	26 684
Latvia	16 101	305	14 203	365	12 992	501
Lithuania	90 073	1 300	83 706	2 362	66 607	4 098
Luxembourg	2 036	600	3 730	581	3 201	820
Hungary	32 216	913	33 489	291	41 105	347
Malta	192	890	316	575	291	531
Germany	1 383 643	96 698	1 374 729	55 510	1 127 937	50 441
Italy	232 760	37 242	254 657	18 570	247 783	19 742
Portugal	55 918	2 108	50 721	203	48 421	228
Romania	19 850	1 646	22 221	736	15 426	1 676
Spain	209 026	22 900	221 370	5 002	200 778	4 660
Sweden	52 730	5 776	64 779	3 707	59 203	6 503
Slovakia	9 419	232	7 905	186	10 046	26
Slovenia	43 299	401	46 972	589	42 871	851

Source: <https://agridata.ec.europa.eu/extensions/DashboardDairy/DairyTrade.html> (downloaded 14 April 2023)

Actions and other measures taken by EU competition authorities in the context of food price increases

The recent sharp rise in food prices is causing problems across Europe. In addition to the GVH, a number of other national competition authorities have launched investigations to identify the causes of the price rises. This sub-chapter focuses on the EU competition authorities' actions (also) in the dairy market over the last three years.

In our narrower region, the Croatian Competition Authority closed competition proceedings in the dairy market in 2020³⁹ and 2022⁴⁰. In both proceedings, the Croatian Competition Authority found an infringement of the Croatian Competition Act by the subject company. In addition to

³⁹ <https://www.aztn.hr/en/vindija-d-d-sanctioned-hrk-284000-for-imposing-unfair-trading-practices-on-milk-suppliers/> (downloaded 14 April 2023)

⁴⁰ <https://www.aztn.hr/en/provedba-zntp-a-aztn-kaznio-pik-d-d-rijeka-sa-100-00000-kuna-zbog-nametanja-nepostenih-trgovackih-praksi-pri-otkupu-sirovog-mlijeka/> (downloaded 14 April 2023)

the infringement findings, fines were imposed on the dairy processors, as the Croatian competition authority found that the two dairy processors abused their strong bargaining power and engaged in unfair commercial practices against their business partners, including by paying their debts beyond the legal deadlines or by selling products without a contract.

On 21 February 2023, the Czech Competition Authority also launched an accelerated sector inquiry into some key food markets, including dairy products. The aim of the investigation is to find out whether there has been a significant increase in the supply chain from primary producers to food processors and retailers and, if so, which players have experienced a significant increase in margins. If the Czech competition authority finds signs of anti-competitive behaviour, it plans to initiate administrative proceedings, which could result in fines of up to 10% of annual turnover for those who engage in anti-competitive behaviour. The investigation was closed in May 2023.⁴¹ Overall, as a result of the investigation, the competition authority found no evidence of anticompetitive behaviour in relation to the price increases of the product ranges under investigation.

The Austrian competition authority launched a sector inquiry into the food market⁴² in October 2022, citing rising prices, bottlenecks in the supply chain and rising inflation. The sector inquiry focuses on four questions: i) which actor in the supply chain was primarily affected by rising food prices in 2022; ii) how product concentration has changed and the market share of private label products; iii) how competition in the food market has changed in recent years; and iv) how online retailing, which is becoming an increasingly important factor, affects competition in the food market. Everyday consumer goods such as milk, bread, meat, fruit and vegetables, bottled beer and non-alcoholic beverages are included in the consumer basket under investigation. In 2023, the survey was completed in several phases, typically with data collection steps, and is expected to be completed in autumn 2023.⁴³

The Dutch competition authority's sector inquiry⁴⁴, which will run from 2019 to 2022, aimed to investigate the pricing of the country's agricultural sector and the reasons behind the purchase of organic products. The assessment of the sustainability of the sector was also central to the inquiry. The study monitored the pricing of seven products: table potatoes, onions, pears, tomatoes, mushrooms, fresh milk and pork. An interesting conclusion of the study is that between 2018 and 2020, market prices for milk did not cover the additional costs of organic certification.

The Portuguese competition authority has also addressed the issue of inflation and published a study in August 2022,⁴⁵ which stressed the importance of maintaining household purchasing

⁴¹ <https://www.uohs.cz/en/information-centre/press-releases/competition/3584-investigation-of-five-staple-foods-shows-no-distortion-of-competition.html> (downloaded 5 July 2023)

⁴² <https://www.bwb.gv.at/en/news/news-2022/detail/bwb-veroeffentlicht-finale-leitlinien-fuer-unternehmen-zu-nachhaltigkeitskooperationen-1-1-1-1> (downloaded 14 April 2023)

⁴³ <https://www.bwb.gv.at/en/news/news-2022/detail-1/update-on-sector-inquiry-into-food-industry-afca-questions-price-comparison-sites> (downloaded 5 July 2023)

⁴⁴ <https://www.acm.nl/en/publications/agro-nutri-monitor-2022-price-formation-process-foodstuffs-and-reasons-purchasing-organic-products> (downloaded 14 April 2023)

⁴⁵ <https://www.concorrenca.pt/sites/default/files/Competition%20and%20purchasing%20power%20in%20times%20of%20inflation.pdf> (downloaded 14 April 2023)

power in an inflationary environment and the contribution that effective competition enforcement can make to this.

Since 2019, the Romanian Competition Authority has been operating an online platform called “Price monitor”,⁴⁶ where retail food and fuel prices are available. The platform, which is also accessible to the general public, processes food price data uploaded on a daily basis by major food retailers through voluntary data provision. The platform displays information on approximately 30 000 products, based on data from more than 1700 shops. The main objective of the system was to ensure the optimal functioning of the food and fuel retail markets. One of the tools used to do this is to monitor the functioning of market mechanisms, thereby detecting possible distortions/violations of the law. If there is sufficient evidence of the latter, the companies responsible can be sanctioned. The other main objective of the online platform is to stimulate competition in the food and fuel retail markets and improve the competitive environment so that its benefits are passed on to final consumers. The Romanian competition authority does not have the power to intervene in the setting of sales prices or to regulate the level of prices charged by companies operating on the market.

In Greece, there are two pillars for monitoring retail prices. The first is a price monitoring platform,⁴⁷ created under a government measure,⁴⁸ which includes food and fuel prices, and the second is an artificial intelligence platform, operated by the Greek Competition Authority, which processes the data and is able to filter patterns of suspected competition law infringements.

In October 2022, the Greek government decided that retail chains with a total annual turnover above a certain threshold must periodically send to the government the prices of the products they sell according to a list of consumer goods (“household basket”) that are necessary for a decent household living and available at an affordable price. The categories of products in the “household basket” are determined and published by the Ministry of Development and Investment. The retail chains concerned are obliged to ensure that at least one product from each product category in the household basket is available at an affordable price compared to other products in the same category.

The Greek government requested the opinion of the national competition authority on the compatibility of the measure with competition law and the competition authority gave a positive opinion, considering that the measure is temporary, does not distort competition, as it defines a wide range of products, not specific products, and requires changes to the preferential products at fixed intervals (7, 15 days). However, the Greek competition authority has called on the government to investigate and monitor that retail chains do not favour only own-brand products. The Competition Authority also indicated that it will investigate whether there is price collusion between the chains.

⁴⁶ <https://monitorulpreturilor.info/> (downloaded 14 April 2023)

⁴⁷ <https://e-katanalotis.gov.gr/householdBasket> (downloaded 14 April 2023)

⁴⁸ This would logically belong in the next chapter, but the close interdependence of the work of government and competition authorities in this area justifies them being discussed together in one place.

In February 2023, the Greek government extended the validity of the measure taken in autumn 2022 until Easter 2023 and extended the scope of the “household basket” to include food items closely linked to the holiday.⁴⁹ No official information on the extension of the measure has been published and is publicly available. Nevertheless, the Greek Economy Minister said that prices have decreased by 1% per week and by 5% overall in the last period, thanks to the “household basket” and the price monitoring platform,⁵⁰ which is not visible in official inflation data, while Greek (food) inflation in March 2023 increased slightly compared to the previous month.⁵¹ Similar patterns are seen for the rest of the year, with press reports suggesting that the newly formed Greek government plans to extend the existing measures until the end of 2023.⁵²

According to press reports, the Swedish Competition Authority launched a sector inquiry⁵³ in February 2023 to investigate the reasons behind high food prices. The move was motivated by the fact that Swedish food inflation is the highest among the Nordic countries.

Government measures

In order to put the results of the accelerated sector inquiry into context, it is important to understand the response of EU governments to inflation, and food inflation in particular. The measures are diverse, but grouping them together makes it easier to see the main trends. The measures are presented in the following groups: VAT cuts, price caps, energy price regulation, various direct financial support measures and sectoral support.

Many national governments have taken the opportunity to cut VAT. The Bulgarian government has reduced VAT on bread and flour to 0% by the end of 2023.⁵⁴ In Croatia, VAT on some basic food items has been reduced to 5%. The Croatian government’s measure was the biggest VAT cut for butter and margarine, which were previously subject to a 25% VAT rate. The Polish government also responded to higher inflation by cutting VAT. At the beginning of 2022, it introduced a package of measures known as the “anti-inflation shield,” which reduced VAT on electricity, fuel and basic food items to 0%. The measure was in force until 30 June 2023 for food items and has been phased out for other categories.⁵⁵ However, according to press reports, the Polish government plans to maintain the lower VAT rate on food items until the end of 2023.⁵⁶ The Spanish government has also reduced the VAT on basic food items such as

⁴⁹ <https://www.tornosnews.gr/en/greek-news/economy/48455-greek-government-announces-lent-basket-and-additions-to-household-basket.html> (downloaded 14 April 2023)

⁵⁰ <https://www.ot.gr/2023/04/13/english-edition/dev-min-on-household-basket-prices-are-not-just-stable-but-they-are-going-down> (downloaded 14 April 2023)

⁵¹ https://ec.europa.eu/eurostat/databrowser/view/PRC_HICP_MIDX_custom_5784023/bookmark/table?lang=en&bookmarkId=f4543573-a640-4070-95d8-3f7226c8e66b (letöltve: 2023. április 14.)

⁵² <https://www.ekathimerini.com/economy/1214457/household-basket-extended/> (downloaded 5 July 2023)

⁵³ <https://theswedishtimes.se/articles/rising-food-prices-in-sweden-spark-investigation-by-competition-authority> (downloaded 14 April 2023)

⁵⁴ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023) and <https://www.agroberichtenbuitenland.nl/actueel/nieuws/2023/03/02/0-vat-on-bread-and-flour-in-bulgaria-extended-until-end-of-2023> (downloaded 5 July 2023)

⁵⁵ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

⁵⁶ <https://www.vatcalc.com/poland/poland-extends-to-31-dec-2022-inflation-vat-rate-cuts/> (downloaded 5 July 2023)

vegetables, fruit, bread and milk from 4% to 0%. They have also reduced VAT on dry pasta and oils from 10% to 5%. The VAT cuts were in force in the peninsula until June 2023,⁵⁷ although an extension of the measures is on the table.⁵⁸

Like the Hungarian government, the Croatian government introduced a price cap on certain food items (milk, sunflower oil, wheat flour, granulated sugar, whole chicken, pork and minced meat) in September 2022, which is still in force at the time of writing.⁵⁹

Many governments have tried to contain inflation by curbing soaring energy prices. The ways in which energy price measures have been taken vary. In some cases, subsidies are provided to cover the increased costs, in others a price cap has been introduced, similar to that for food, and national governments have responded by cutting VAT in this area. All these measures have indirectly affected the food market.

The Austrian government has introduced a package of measures to curb energy prices. Households have been given a €150 voucher to help cover increased energy costs. In addition, households will have to pay a fixed lower amount for electricity consumption equivalent to 80% of average consumption in 2021.⁶⁰ And businesses have been helped by a reduction in energy taxes.⁶¹ The Belgian government has reduced VAT on electricity and natural gas⁶² which will become permanent for households from April 2023, although the excise tax reform introduced in parallel with the measure will partially offset its benefits.⁶³ The French government introduced the so-called “tariff shield” in 2022, thus bringing energy prices under control.⁶⁴ The measure will remain in force until January 2024 with minor modifications.⁶⁵ The Croatian government also introduced a price cap on household electricity prices from 1 October 2022 to 30 September 2023.⁶⁶ As described above, the Polish package of measures included a reduction of VAT on electricity to 0%, but this measure is no longer in force.⁶⁷ Luxembourg has capped the increase in the price of natural gas at 15% from 1 January 2023 to 31 December 2023, based on the price of the energy carrier in September 2022. The Luxembourg government has set the price of electricity at the 2022 level, provided that it is consumed below the average

⁵⁷ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

⁵⁸ <https://rightcasa.com/vat-reduction-on-food-remains-in-spain/> (downloaded 5 July 2023)

⁵⁹ <https://agrokep.vg.hu/kozelet/kulfoldi-hirek/elelmiszerarstopot-vezethet-be-a-horvat-kormany-27472/> (downloaded 14 April 2023) and <https://vlada.gov.hr/news/gov-t-set-of-measures-is-timely-and-strong-intervention/36041> (downloaded 14 April 2023)

⁶⁰ <https://www.mfat.govt.nz/en/trade/mfat-market-reports/austrias-response-to-the-european-energy-crunch-november-2022/?m=271691#search:YXVzdHJpYSdzIHJlc3BvbNIIHRvIHRoZSBldXJvcGVhbg==> (downloaded 14 April 2023)

⁶¹ <https://www.bmf.gv.at/en/current-issues/Support-to-cushion-consumers-against-high-energy-costs-.html> (downloaded 14 April 2023)

⁶² <https://www.brusselstimes.com/299896/belgium-to-make-reduced-6-vat-for-gas-and-electricity-permanent> (downloaded 14 April 2023)

⁶³ <https://www.bdo.be/en-gb/news/2023/vat-reduction-gas-electricity-1-april-2023> (downloaded 5 July 2023)

⁶⁴ <https://www.service-public.fr/particuliers/actualites/A15480?lang=en> (downloaded 14 April 2023)

⁶⁵ <https://www.reuters.com/business/energy/french-aid-expected-dampen-near-84-power-price-rise-insee-2023-02-01/> (downloaded 5 July 2023)

⁶⁶ <https://vlada.gov.hr/news/gov-t-set-of-measures-is-timely-and-strong-intervention/36041> (downloaded 14 April 2023)

⁶⁷ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

consumption required.⁶⁸ In addition, it provides a one-off annual financial contribution to cover the increased energy prices.⁶⁹ The Portuguese government has reduced the VAT rate for household electricity from 13% to 6% with effect from 1 October 2022, and the measure will apply until the end of 2023.⁷⁰ The Slovenian government has reduced the VAT on electricity, natural gas, district heating and firewood from 22% to 9.5% for the period from 1 September 2022 to 31 May 2023.⁷¹

As a social measure, the Austrian government has decided to grant a one-off financial support of €300 to vulnerable groups.⁷² The Cypriot government also decided to provide one-off cash support to specific vulnerable groups.⁷³ In Germany, financial support was targeted at students and the amount of these grants was increased.⁷⁴ The French government has extended the use of food vouchers.⁷⁵ The Irish government has increased the amount of benefits for families with children, in addition to one-off support for socially vulnerable groups.⁷⁶ The Latvian⁷⁷ and Lithuanian⁷⁸ governments have also decided to introduce various social benefits. The Maltese government has provided substantial financial support to vulnerable citizens. The Italian government provided vouchers for the poorest families.⁷⁹ The Slovak and Slovenian governments also decided to introduce family allowances.⁸⁰

Greece has introduced the Market Pass online platform to apply for financial assistance. Around 85% of Greek households are beneficiaries. The Market Pass platform will run from February 2023 until July 2023, with press reports suggesting that the new government will extend it until December 2023.⁸¹ Single-person households will be entitled to €220 for the period and €100 for each additional person for the six months. The Market Pass aims to cover increased household expenditure, particularly on food. Eligibility is linked to income or property. The amount can be claimed in two ways, firstly on a digital debit card, which can be used in grocery

⁶⁸ https://gouvernement.lu/fr/actualites/toutes_actualites/communiqués/2022/11-novembre/14-mesures-transition-energetique-menages.html (downloaded 14 April 2023)

⁶⁹ https://gouvernement.lu/en/actualites/toutes_actualites/communiqués/2022/02-fevrier/28-impact-prix-energie.html (downloaded 14 April 2023)

⁷⁰ <https://www.vatcalc.com/portugal/portugal-cuts-domestic-electricity-vat-from-13-to-6/> (downloaded 14 April 2023)

⁷¹ <https://www.gov.si/en/registries/projects/measures-to-mitigate-price-increases/> (downloaded 14 April 2023)

⁷² <https://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=10346&furtherNews=yes> (downloaded 14 April 2023)

⁷³ <https://www.reuters.com/world/middle-east/cyprus-caps-vat-electricity-increases-pensions-cushion-inflation-blows-2022-05-27/> (downloaded 14 April 2023)

⁷⁴ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

⁷⁵ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

⁷⁶ <https://www.gov.ie/en/press-release/dc139-government-announces-new-cost-of-living-measures-for-families-businesses-and-the-most-vulnerable/> (downloaded 14 April 2023)

⁷⁷ <https://www.ips-journal.eu/topics/economy-and-ecology/protecting-people-from-inflation-6139/> (downloaded 14 April 2023)

⁷⁸ <https://finmin.lrv.lt/en/news/the-eur-2-26-billion-package-presented-to-counter-the-effects-of-inflation-and-to-strengthen-energy-independence> (downloaded 14 April 2023)

⁷⁹ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

⁸⁰ <https://www.gov.si/en/registries/projects/measures-to-mitigate-price-increases/> (downloaded 14 April 2023)

⁸¹ <https://hellas.postsen.com/business/404202/Market-Pass-%E2%80%93-Expansion-with-new-beneficiaries-announced.html> (downloaded 5 July 2023)

stores, supermarkets, farmers' markets, bakeries and butchers. Alternatively, the money can be transferred to the beneficiary's bank account, but in this case the beneficiary is only entitled to 80% of the amount, as there is no limit on how much can be used.⁸²

In Romania, the government provided vouchers in electronic form under the "Support for Romania" scheme, which was defined on a social basis. The vouchers, worth 250 lei, were distributed every two months until January 2023. A total of 2.5 million Romanian citizens benefited from the vouchers. The Romanian government also provided a one-off grant of 700 lei to pensioners who met the conditions set on a social basis. Approximately 3.3 million people benefited from the latter benefit. Prior to this, the Romanian government had already decided on a similar benefit in January 2022.⁸³ The Spanish government provided a cheque of €200 for lower-income families.⁸⁴

⁸² <https://www.keeptalkinggreece.com/2023/02/20/market-pass-platform-open-feb21-qa/> (downloaded 14 April 2023)

⁸³ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

⁸⁴ <https://www.euractiv.com/section/agriculture-food/news/agrifood-special-capitals-brief-controlling-food-prices/> (downloaded 14 April 2023)

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