

# The inflation situation in Hungary

Response to Katalin Botos „Inflation and our finances” and István Ábel – Gergely Bognár – Máté Lóga – Attila István Szabó „Changes in the explanation of inflation”

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**SUMMARY:** The article examines the factors driving inflation in 2022-2023. We explore why inflation in the Hungarian economy has risen more sharply compared to neighboring countries with similar economic structures. The goal of the article is to highlight these factors and provide policymakers with recommendations for a more resilient inflation policy.

First, we respond to Katalin Botos’ views on inflation, and then we analyze some global inflationary trends. Our study focuses specifically on inflation in the agricultural sector.

Our findings indicate that, in addition to global cost-push inflationary pressures, several country-specific factors have contributed to the rise in domestic inflation. Energy prices have surged, and some supply chains in the East have been disrupted. For Hungary’s less productive but energy-intensive food industry, the energy price shock, combined with higher exchange rate volatility in 2022-2023 compared to neighboring countries, has had a strong impact in the short to medium term, causing significant deviations from long-term equilibrium. In our view, beyond enhancing food self-sufficiency, special attention should be given to the domestic development of the agricultural supply chain..

**KEYWORDS:** inflation, monetary policy, interest rate policy, food inflation

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## Introduction

The present paper is a kind of substantive response to Katalin Botos’ „Inflation and our finances” and István Ábel – Gergely Bognár – Máté Lóga – Attila István Szabó’s „Changes in the explanation of inflation”, published in the last two issues of Pénzügyi Szemle. Botos’s article provides a broad, comprehensive and therefore necessarily superficial analysis of current Hungarian monetary and fiscal policy. He explores in detail the sources and background of the outsized inflation in 2022-2023. In a

high quality analysis, Botos (2023) shows that these demand and supply side shocks – such as the significant unperforming money outflows during Covid, external economic conditions (energy price shocks), as well as natural problems (drought), market interference subsidies (price caps), price policies, and also our deteriorating balance of payments due to the energy price hike and the exchange rate – are actually responsible for the inflation in Hungary in 2022-2023. This is the reason for the dramatic jump in inflation in 2022-2023.

The analysis covers a number of important factors and correlations, but some additional effects may also be worth exploring to get the full picture. In our view, several other factors played a role in the spike in inflation in 2022-2023. The phenomenon that most needs to be explained is why inflation in the Hungarian economy has increased more strongly than in surrounding countries with similar structures; this requires further explanation. In this article, we aim to highlight these additional effects and make suggestions for economic policymakers to design a more resilient inflation policy. In our paper, we first react to the views on inflation in the two studies and then examine some global trends in inflation. Finally, we give special attention to the analysis of inflation in the agricultural sector, given the high level of domestic agricultural inflation in the world.

## Katalin Botos on her views on inflation

In her paper, Botos analyses a number of internal and external causes of inflation. Focusing on the main agreement of the paper – not analysing the relationship between external and internal factors – we agree with Katalin Botos' main point that „a small, open economy can hardly manage to bring down inflation by autonomous monetary policy alone, its monetary policy cannot disconnect from the trends in international financial markets due to indebtedness.” Botos 2023:84)

The picture is mixed when it comes to the details. Although the authors of the present paper are in an easier position because we are writing our paper a few months later, the stagflation envisaged by Botos, which would entail economic stagnation in the face of stubbornly high inflation, now seems fortunately unlikely. In fact, high inflation seems to have been falling and falling rapidly around the world and in our country. This is largely due to changes in the price of energy commodities on the world market, and is therefore an external factor independent of us.

This is ultimately the conclusion reached by Katalin Botos, who rightly points out that „international experience shows that the disinflation has not been accompanied by lasting real gains.” (Botos 2023:85) Citing an article by Spéder-Vonnák (2023), she shares our view that one of the main reasons for the rapid rise and fall in inflation is the spike and then sharp fall in energy prices.

However, this also required a tightening of domestic monetary policy to bring down inflation, which was pushed down by external factors. The daily rate hike to 18% was a perfect complement to the fall in household and government demand, even if in our view the MNB was a little late in raising rates, lagging behind the rise

in inflation. Botos also refers to this: the „correction that started in the summer of 2022, or in September in our case, was no longer sufficient to stop inflation” (Botos 2023, p. 89), in the context of Fellner (2023). But finally, from the monetary side, this necessary step has been taken, which at the same time is detrimental to economic growth and to the fiscal balance and fiscal sustainability of the budget, both directly (through the increase in interest expenditure) and indirectly (through the reduction in VAT revenues, which play a prominent role in the Hungarian budget).

Katalin Botos briefly summarised the causes of inflation in Hungary in the chapter „The causes of inflation”. In it, she highlights the role of credit-inflationary consumption in addition to traditional energy price increases, wage rises, trader responses to the price cap regime, and the drought year 2022. Indeed, the expansion in household credit after the 2010 elections, alongside the stimulation of real output, has contributed to rising inflationary pressures. This is discussed in the next chapter. He rightly concludes that „stimulating the economy by expanding demand through borrowing, while undoubtedly unorthodox, is by no means a Hungarian invention, nor is it exceptional. It has been used by developed market economies, with America at the forefront.” (Botos 2023, p. 87)

Botos’ reasoning is correct only under certain conditions. Since, in the case of a post-Covid recovery, a borrowing-led expansion of demand in sectors where output is below spare capacity would not cause price increases (services, manufacturing), but in sectors where there was already excess demand or limited supply (construction, food), it would indeed contribute to an expansion of inflationary pressures in those industries. In the author’s defence, if he had wished to draw a correct chain of inference that could be broken down into several branches, he would have had to write a paper far longer than the length of this article.

Our paper focuses on the monetary policy strand, not on the main suggestion of Botos’ paper „It would be appropriate to replace the predominantly VAT-based fiscal revenue policy with a more combinatorial and structured policy of more proportional – and progressive – income tax policy.” (Botos 2023:84) Likewise, for reasons of space, we do not respond to the historical discussion of the inflation over-demand as a reason for the introduction of the forint. In any case, Botos discusses the combined role of monetary and fiscal policy and draws a far-reaching conclusion from the failures of this cooperation: „It seems, therefore, that the „Hungarian model” will need to be modified in the wake of the 2022 inflationary wave.” (Botos 2023, p. 93).

At the end of her paper, Katalin Botos mentions the situation of the Hungarian agricultural economy. She notes with concern that „while we have excellent agricultural conditions, we had the highest food price inflation in Europe last year. Our food prices are among the highest. This is shocking, as is the reason why our food industry has declined so significantly.” (Botos 2023, p. 92) Because of its paramount importance, agri-food inflation is dealt with in detail in the third and final part of this paper.

The interpretation of the Ábel István-Bognár Gergely-Lóga Máté-Szabó István Attila „Changes in the explanation of inflation” study

In this part of our study we reflect on the main claims of the article (Ábel et al. 2024, p. 110). The main idea of the paper is that, when analysing the sudden rise in inflation in 2021-2022, „most analysts focused on product market shocks and not on unemployment indicators. The Phillips curve approach, which provides the traditional theoretical framework, was questioned. In addition to the surge in food and energy prices, many new inflationary factors have come to the fore, such as the disruption in supply chains, as well as fiscal spending and loose monetary policy in the context of the virus crisis. These factors do not fit into the traditional approach.”

The authors use Galbraith (2023) as a basis to analyse the impact of energy price increases on inflation. They find that before the Covid crisis, oil prices were particularly low; this fell further during the viral crisis. Compared to this low base, energy price inflation became high. In addition to the rise in energy prices, the shortage in the market for semiconductors, chips, which play an important role in the automotive industry, is also an important factor, as the fall in demand expected by car manufacturers has not materialised. As a result, prices in the used car market have risen significantly.

Ábel et al. (2023, pp. 115-116) mention the IMF's estimation of the Phillips curve for Hungarian data based on the study by Cohn-Bech – Foda – Roitman (2023). „The estimation results of this analysis indicate that the variables used in the traditional Phillips curve approach are significant among the factors explaining inflation in Hungary, but that in addition to these, idiosyncratic factors have had a significant impact on inflation. Thus, foreign price shocks also emerged here as an accelerating factor for inflation. At the same time, a number of internal effects that traditionally appear as inflation-enhancing factors, such as inflation expectations or demand-side factors, are not found to have significant explanatory power in the analysis of current inflation.”

Overall, we agree with the authors' argument that the Phillips curve was flat before the Covid crisis (for 20 years) and since then, mainly due to the decline in workers' bargaining power, especially the decline in the ability of organised workers to assert their interests (Ábel et al. 2024, pp. 122-123). The authors have reviewed a large literature where the unemployment rate has been replaced by the number of vacancies, but the results are inconclusive.

However, we fully agree with the authors' conclusion that the current inflation is not caused by rising wages but by rising profits. While there have been suggestions in the US and the EU that the increase in demand after the pandemic crisis drove up prices, the „data do not suggest that aggregate demand has increased excessively.” (Ábel et al. 2024, p. 124) Indeed, in 2022, real wages were observed to fall worldwide. Based on several references in the literature, the study puts the role of profit growth in the evolution of inflation at around 60%. This factor is also considered by the authors of this paper to be of paramount importance, and our views are therefore set out separately in the Global Inflation Trends section.

On the Phillips curve, we agree with the analysis of the role of wages and profits: „In the Phillips curve approach, there have been significant changes in the nature of inflation from the outset, reflecting the changes that have taken place. For example,

the unemployment gap was later replaced by the output gap. In the current situation, the output gap has been replaced by arguments in favour of including enterprise pricing, marginal cost and the profit rate.” (Ábel et al 2024, p. 110)

## Global inflation trends

In line with the message of the two papers above, in this chapter we look at the broader inflationary process, analysing current global inflation trends on the basis of our own views. The low inflation of the last one or two decades has been kept low by ‚megatrends’ such as digitalisation and globalisation (Matolcsy et al., 2020), which bring with them interesting phenomena from an economic perspective and also from the perspective of the causes of inflation.

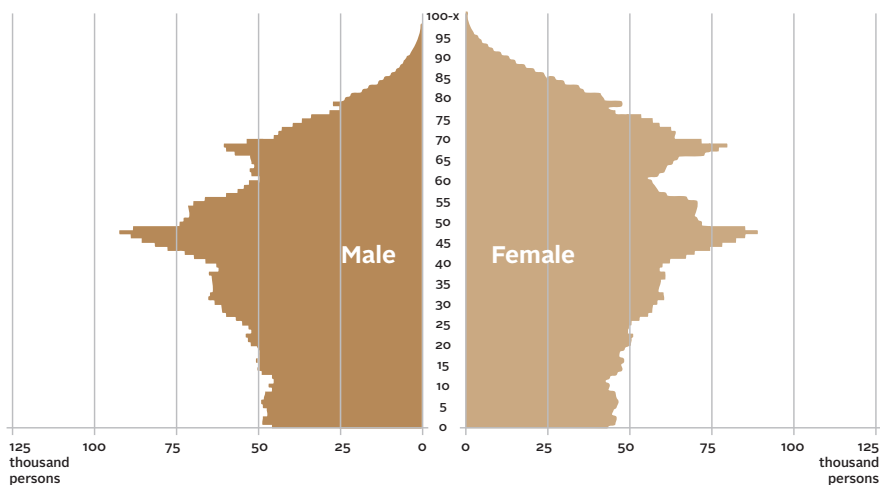
For example, over the last two decades, companies have been able to continuously improve their efficiency by introducing more effective communication and digitalisation techniques. And globalisation and the emergence of cheap (albeit recently fragile) supply chains around the world have further reduced the price of goods and services. However, this favourable period is set to end in the medium to long term. There is still potential for further technological developments, but these can typically be introduced into the everyday life of firms at increasingly high implementation costs: high-speed internet communications, the spread of mobile phones, the rapid evaluation of data using office software or enterprise information systems – all tools that almost all firms have been able to incorporate into their processes. There are further opportunities for development in AI, metaverse and big data, but their cashable application in an efficiency-enhancing enterprise environment is not yet widespread. In addition, epidemics and armed conflicts and possible trade wars are making it increasingly difficult to sustain previously favourable supplier prices (Goodhart-Pradhan 2017; Hajnal – Várhegyi 2016).

Hungary is particularly exposed to international influences in this area. In more open economies, inflation is much more sensitive to external than internal influences, as trade barriers are reduced (Nagy – Tengely, 2018). Auer et al. (2019) also investigated the inflation-synchronizing effect of globalization and found that global value chains and input-output linkages significantly facilitate the co-movement of inflation across countries.

This interdependence was illustrated very clearly by Cravino – Levchenko (2017) when they examined the strength of international input-output relationships. They find that global inflation shocks are transmitted significantly across countries. On average, a shock with a 1% increase in inflation raises domestic producer price inflation by 0.19% in countries other than the country under study.

The deteriorating social age profile across Europe and in Hungary also points to a further negative inflation trend.

Figure 1: Population of Hungary by sex and age, 2023.



Source: KSH 2024a

An increase in the proportion of older people also means that there will be fewer workers in the economy as the proportion of working-age people decreases, which in turn increases inflation (Yoon et al., 2014). The same phenomenon also increases inflation in other respects: the fact that the number of working-age people in the labour market is decreasing puts workers in a better position to negotiate wages, which leads to higher wages. This also leads to increased demand, thus increasing inflation. In addition, higher tax burdens on workers are inevitable in order to maintain the social safety net and ensure care for the elderly (Goodhart – Pradhan, 2017). This also raises high inflation expectations, so workers will fight for even higher wages in wage negotiations. Thus, this process may end up in a self-exciting price-wage spiral (Hajnal – Várhegyi 2016). Indeed, in the long run, encouraging family formation to improve the deteriorating age structure is an important policy goal, but in the short and medium term, measures to prevent the emigration of the current young generation and to create a social and economic system favourable to them should be at least as important a government goal for the future.

In terms of the development of domestic inflation in 2022–2023, we consider the process known as profit-driven inflation (profit inflation) to be an important phenomenon, which also appeared as a negative overtone in Hungary in this period. The concept means that some firms/companies set prices for their own products unjustifiably higher than expected, even beyond the price increases of their suppliers, in order to generate higher profits for themselves (Kharroubi & Smets, 2024).

While this leads to adverse effects at the macro level, it was a rational decision by companies at the micro level. They could raise their prices even in the absence of a rise in their costs. Rising energy prices, extraordinary taxes (extra profit taxes) and increasingly widespread price caps have all contributed to market uncertainty.

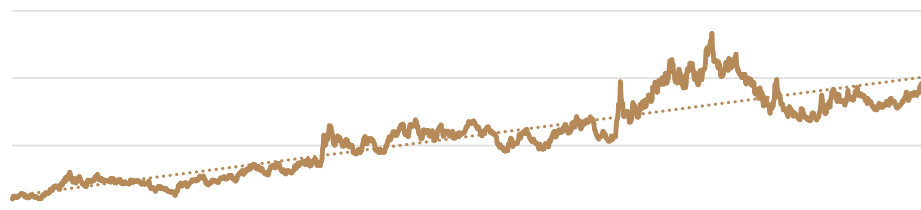
To hedge against these risks, many product manufacturers/distributors and service providers have reacted by raising their profit margins. As stated in the MNB's December 2023 Inflation Report, „corporate profits have risen significantly in recent quarters.” (MNB 2023)

In a stable regulatory and tax environment, market competition and financially conscious consumer behaviour (reinforced, for example, by price monitoring) price out those who price too high corporate profits, but in a hectic and unpredictable legal framework, rational behaviour is to prepare for losses; market selection does not occur. It is therefore recommended to pay particular attention in the future to reduce the level of special taxes and to avoid sudden economic interventions (in the absence of a proper impact assessment).

In autumn 2021, the Government temporarily introduced a price freeze on certain basic foodstuffs. In November 2022, the Government decided to extend the price freeze on certain basic foodstuffs (Government Decree No.6/2022 (I. 14.) of 14 January 1990 on the price freeze in accordance with Decree LXXXVII of 1990 on the price fixing of basic foodstuffs. The prices were controlled by the general consumer protection authority, i.e. the county and metropolitan government offices, with the involvement of the National Food Chain Safety Office. A growing number of peer-reviewed papers conclude that the perceived anti-inflationary price cap policy has contributed to the strengthening of inflation (Petschnig 2023) and that the maintenance of price caps and interest rate freezes has had a negative impact (Várhegyi 2023). Conversely, some analysts argue that „administrative barriers to price increases – from ration cuts to price caps – have had a temporary, mood-boosting effect, and have led to waste, supply disruptions or even imbalances.” (Karsai 2023)

It is important to highlight that the profit-driven inflation caused by market uncertainty may have been contributed to by the sharp weakening and continued volatility of exchange rates in 2022, which was a sharp deviation from the usual trend in 2022, which economic agents were unable to price in their previous plans. When exchange rates become unstable, firms are uncertain about the exchange rate value they can expect, and they price their product/service so high that they can make a profit even if an exchange rate loss is realised.

**Figure 2: Value of the euro in national currency**



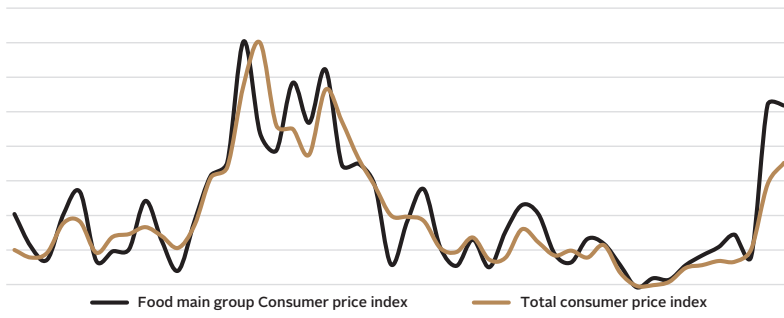
Source: MNB 2024a

## Distorting factors in the population's perception of inflation

Another distortion of global trends that we have examined in the perception of inflation by the population is the fact that the decade prior to 2021 was a period of relatively low inflation. The perception of the dangers of inflation in the economics literature was eclipsed after the 2008 global economic crisis. For almost a decade after the 2008 global economic crisis, economic agents lived in a period of grace, with some minor geographical and temporal exceptions. This period was characterised by a trinity of low inflation, low interest rates and high economic growth. However, this economic policy constellation has changed since 2021, in particular as a result of the rise in the US Federal Reserve's interest rate.

The international and domestic population is used to an inflationary environment of around 5% and below, and therefore the population was caught off guard by such a price increase. However, as the historical inflation data below show (Figure 3), inflation rates of 5-10% were not unusual before the 2000s. Thus, it cannot be said that extreme low inflation after 2010 is the natural course.

**Figure 3: Consumer price index by main consumption groups and the consumer price index for pensioners [previous year = 100.0%]**



Source: KSH 2024b

In our view, the period of low inflation in the last decade and a half has been a one-off or, to put it less extreme, a rare event, and we should settle for a period of around 5% rather than 2%-3% on a sustained basis, given global trends.

## Food inflation and its distorting factors in the public's perception of inflation

Food prices are weighted at around 20% when measuring inflation. Inflation also plays a significant role in driving food price increases (Bareith and Fertő 2023).



**Table 1: Consumption weight of food in the measure of inflation**

Breakdown of detailed groups of the HCSO by MFI, weights (%)														
Years	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Market goods	80,6	81,0	81,0	81,0	82,3	83,6	83,8	84,0	83,4	84,9	86,3	87,6	86,8	86,9
Food	17,5	17,9	18,3	18,7	19,3	19,1	19,3	18,8	19,3	19,4	20,2	19,4	19,6	19,6

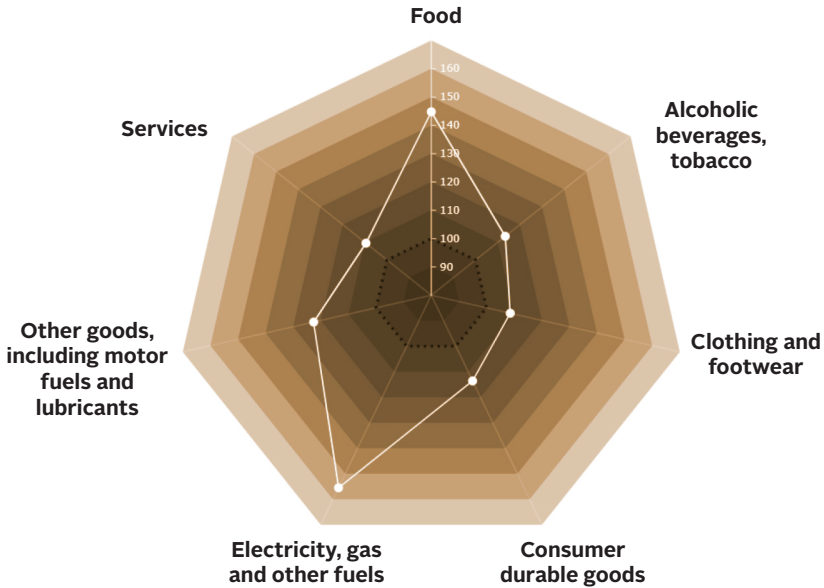
Source: MNB 2024c

There are several distorting factors in the public's perception of inflation. These distortions exacerbate the high inflation shown by the statistics. A significant share of household budgets is spent on less frequently purchased goods and services. This could be, for example, cars or durable technical goods. These expenditures and changes in goods tend to be overlooked when forming an opinion on inflation. Meanwhile, some regularly purchased items (e.g. food, fuel) are more heavily weighted in household perceptions, so if the prices of these items go up, people may usually overestimate actual inflation (Molnár 2014).

However, this is only partly a perception bias, as people in lower income deciles spend a higher proportion of their income on food than people in higher income deciles. As a result, the impact of food inflation on these already financially insecure groups is more negative than the average inflation rate (Sipiczki et al 2023). In these low income groups, Hungarian inflation is virtually synonymous with food price inflation.

International experience suggests that this has welfare consequences, especially in economies where a large share of the population lives below the poverty line, where poor members of society spend a larger share of their income on food and thus suffer severely from rising food prices (see Barrett and Do-rosh, 1996; Arndt et al., 2008; Moncarz et al., 2018).

**Figure 4: Inflation Scoreboard December 2022 Consumer price indices by expenditure group (same month of previous year = 100)**

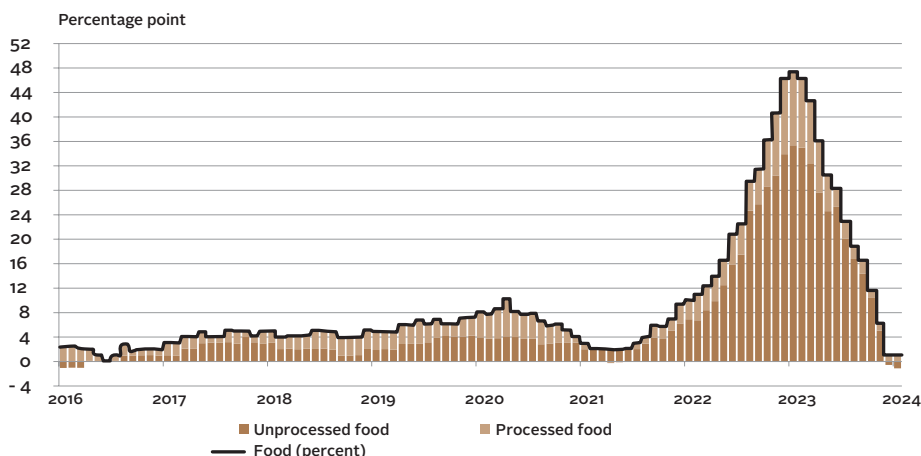


Source: KSH 2024c

As a small open economy, with declining domestic food self-sufficiency and an increasing share of agricultural imports, Hungary is particularly exposed to the negative effects of price changes. The elasticity of demand for most agricultural commodities is so low that small changes in demand cause large price changes. (Moses et al 2019) Price volatility is a particularly high risk in the agricultural sector, as profit levels in many production sectors are close to equilibrium profits, which are minimal. (Bareith and Csonka 2019; Bareith and Csonka (2022))

Katalin Botos (2023) pointed out in her study that the increase in food prices in 2022 was largely driven by drought weather and was not helped by export difficulties through the deteriorating exchange rate. However, this assessment is worth complementing from another perspective: the weakening forint is closely linked to food prices. One of the unfortunate reasons for this is that the domestic food industry's supply chain is also quite import-dependent. In other words, part of the domestic consumption of agricultural and food products is covered by imports, a share that has been increasing over the last two years. The falling forint exchange rate therefore has a price-distorting (inflation-increasing) effect.

**Figure 5: Food inflation in Hungary**



Note: The difference in food price inflation calculated by the HCSO and the MNB is explained by methodological differences. The MNB classifies food-related services as market services (restaurant meals, workplace meals, canteen goods) and the prices of regulated goods and services (school meals, nursery and kindergarten meals), and some beverages as non-durable industrial goods (coffee, tea, soft drinks).

Source: MNB 2024b

In 2023, the volume of agricultural goods exported from Hungary will exceed the volume imported into Hungary. Agricultural exports will account for 9% of total trade, while imports will account for only 7% (AKI 2024). A major import item for the agricultural sector is chemical products (fertilisers, pesticides) and machinery imports.

Agricultural entrepreneurs imported mainly agricultural and machinery products for their activities, with a smaller share of food and chemical products. On the cost side, this is a cost-increasing item due to the weakening forint, which domestic farmers factor into their prices. This puts additional inflationary pressure.

Further cost-push inflationary pressures were caused by the fact that, although households were partly protected by the rationing measure, the government was able to finance rising purchase prices mainly from corporate taxes. These taxes were also passed on to prices through corporate pricing. Energy prices have risen sharply and the war in Ukraine has disrupted some of the supply chains in the East. This has also increased the cost of materials for agricultural work. In addition, the prices of fertilisers and crop protection have risen significantly in recent years, which has led to a further increase in agricultural costs.

Food inflation plays a crucial role in public welfare and the financial security of a country. Energy price shocks, coupled with exchange rate depreciation, have a strong short- and medium-term impact on food inflation, causing significant deviations from long-run equilibrium. Additionally, there is considerable uncertainty regarding

the inflation outlook for the agricultural economy in 2024. While various scenarios are possible, certain trends can be outlined. It is likely that the negative effects of climate change, such as more frequent droughts and water shortages, will intensify, putting further upward pressure on inflation. Another factor is the uncertainty surrounding the exchange rate of the forint, which, in addition to raising the cost of direct food imports, will also drive up domestic production costs, as previously mentioned.

We agree with Katalin Botos that the food industry's production capacity is insufficient in several areas. Domestic production has declined significantly, and in a weakening exchange rate environment, this is fueling inflation. However, addressing inflation requires a multi-faceted approach. Beyond increasing food self-sufficiency, special focus should be given to developing the domestic agricultural supply chain. Monetary and exchange rate policies must consider agricultural consumption, as it is a key driver of inflation, particularly affecting lower-income groups more than is often acknowledged.

## Summary

This article has examined several factors influencing domestic inflation, with the following being the most significant:

Global events such as pandemics, armed conflicts, and potential trade wars negatively affect the sustainability of previously favorable supplier prices, leaving Hungary particularly vulnerable to international influences in this regard. The continued adverse inflationary trend projected for Europe and Hungary will likely worsen due to an aging population structure. Profit-driven inflation, along with the sharp weakening and persistent volatility of exchange rates in 2022, are also contributing factors.

Public perceptions of inflation may be distorted by rising food prices, particularly as lower-income groups are more sensitive to these changes. Other country-specific factors driving food inflation in Hungary include significant increases in energy prices and disruptions to supply chains from the East.

A comprehensive approach is essential to combat inflation. In addition to enhancing food self-sufficiency, domestic development of the agricultural supply chain must be prioritized. Monetary and exchange rate policies need to account for agricultural consumption, a primary driver of inflation. This is especially important given its disproportionate impact on lower-income groups. ■

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