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Monitoring food price changes in the euro area in real time
Lessons from the 2022-24 period

Households closely monitor food prices as they are part of their daily purchases. Driven by a sharp rise in commodity prices in 2021, food prices increased strongly between early 2022 and early 2023, before stabilising in 2023 and 2024. In order to analyse this development as closely as possible, the European Central Bank has developed a web-scraping tool that collects every day several thousand prices set by a number of supermarkets in the euro area and published on the Internet. This article draws some lessons on food price adjustments. During the inflationary wave, price increases were more frequent than usual, but their size remained unchanged. Since mid-2023, price adjustments have normalised, with an equal proportion of increases and decreases.

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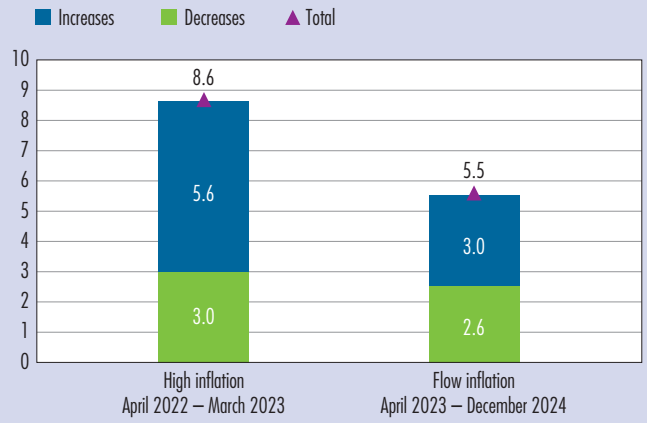
JEL codes
E3, E5

63 million
number of food price readings on supermarket websites in four countries (Germany, France, Italy and Spain) between April 2022 and December 2024

3 times per year
average number of times a product changes price in a year, excluding temporary changes, meaning that prices remain fixed for around four months in a row

15%
Average size of price increase or decrease (in absolute terms) when a price is revised

Average proportion of products whose prices change in a given week, in Germany, France, Italy and Spain
(in %)



Source: European Central Bank (*Daily Price Data Price-setting Microdata Analysis Network* – DPD PRISMA); authors' calculations.
Key: During periods of high inflation, 8.6% of prices change in a given week on average, of which 5.6% increase and 3% decrease.
Note: The proportion of price changes is calculated, over a given week, as the ratio between the number of products whose price changes and the total number of products for which a price is observed.

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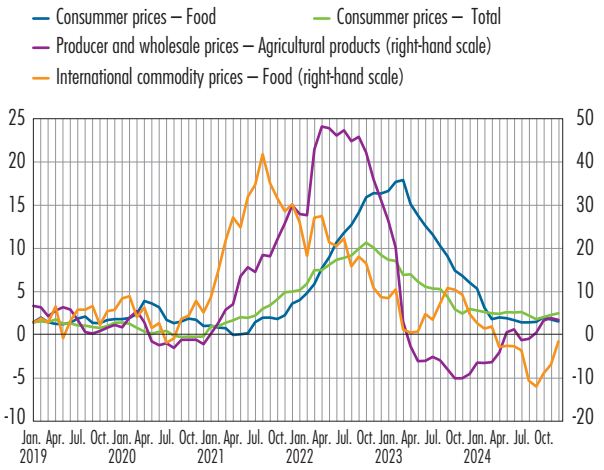
Consumer price inflation in the euro area rose sharply at the end of 2021, peaking at over 10% in October 2022 compared with October 2021, before gradually declining and settling at just over 2% in 2024. Households were particularly affected by this pronounced rise in prices as it concerned everyday purchases such as petrol in 2021 and 2022, and then food products between 2022 and 2023 (see Aldama et al., 2024, and Bignon and Gautier, 2025). In the case of food prices, international commodity prices posted a rapid and sharp rise in 2021, which was gradually passed on to producer prices and then to consumer prices (see Chart 1 and also Perrot et al., 2022). As a result, in early 2023, the year-on-year increase in food prices in the euro area peaked at close to 18% (compared with less than 2% on an annual average over the past 25 years). As international prices eased, food prices then stabilised in 2023, with their year-on-year increase remaining at 1.5% at the end of 2024.

In order to monitor food price changes as closely as possible, the European Central Bank (ECB), in conjunction with the central banks of the Eurosystem, has set up a "Daily Price Dataset (DPD)" tool that collects thousands of prices every day in supermarkets in the euro area using web scraping techniques. Thanks to this tool, which was launched in April 2022, the ECB has been able to collect several million prices for close to 100,000 food products commonly sold in a number of supermarkets in the four largest economies of the euro area (Germany, France, Italy, and Spain).

C1 Food inflation in the euro area between 2019 and 2024

(year-on-year, in %)



Sources: European Central Bank and French National Institute of Statistics and Economic Studies (INSEE); authors' calculations.
Note: The producer and wholesale price index for agricultural products includes cereals, oils, meat and dairy products. Changes in international commodity prices are calculated as the average of changes in international price indices for oilseeds, cereals, meat and sugar.

Monitoring food prices in real time is useful for analysing inflation in several ways. Not only are food prices closely monitored by households, but food accounts for close to 20% of household consumption in the euro area, and changes in food prices can contribute significantly to overall inflation. In addition, food prices are largely dependent on agricultural commodity prices, which can fluctuate sharply from month to month and whose impact on consumer prices is not easy to forecast. Finally, granular daily price data provide insight into how food prices are adjusted: how many prices are changed each day, how many prices increase or decrease over a given period and, more broadly, how an economic shock is passed on to inflation.

This article covers the period from April 2022 to December 2024. This period provides lessons on how prices adjusted when food prices rose particularly sharply (between 2022 and early 2023 food prices increased by an average of 1% per month) and then when food prices stabilised, rising by only 0.1% per month on average from mid-2023 onwards:

- Each week, in the four largest economies of the euro area and over the 2022-24 period, around 10% of food prices changed in the online supermarkets in the sample. Excluding temporary changes such as promotions, only 6% of prices changed during a typical week, with prices being changed on average three times a year.

- Among the price changes, slightly more than half were price increases, which also implies that around 45% of price changes were decreases. When prices changed, in absolute terms, the average size of the increase or decrease was close to 15%.

- Following the increase in commodity prices, price changes were more frequent than usual and the share of price increases in price changes rose particularly sharply. At the same time, the size of price increases or decreases – taken separately – remained broadly unchanged on average. Overall, the higher share of price increases in price changes contributed significantly to food price inflation in 2022–23.

1 A new Eurosystem initiative to monitor food prices in real time

Households are increasingly shopping online. According to the French National Institute of Statistics and Economic Studies (INSEE), the proportion of households in France that reported having made at least one online purchase in the last three months rose from 29% in 2009 to 63% in 2024. These purchases mainly concern clothing, transport, and holiday accommodation, but also food (see "Achats, ventes et échanges sur Internet", Insee, 2019). In response to these new consumer habits, statistical institutes and central banks have adapted their tools for measuring and analysing inflation in order to continue to monitor price changes for purchases actually made by households. The growth in online shopping has also led to greater availability of data on the prices charged by different retailers and has made it possible to collect prices in a more centralised manner using price scraping tools (see Box 1 below).

In this context, the European Central Bank, together with the national central banks of the Eurosystem, including the Banque de France, launched the Daily Price Dataset (DPD). The aim of this project is to collect prices from supermarket websites in several euro area countries in order to gain a better understanding of retailers' price adjustment behaviour. To this end, an IT infrastructure for collecting price data through price scraping was set up at the ECB.[1] Price collection began in 2022 and, since then, the DPD project has built up a database containing more than 60 million daily price observations, corresponding to close to 100,000 individual products, with an average of around 10,000 products per supermarket in each of the four main euro area economies (see Table 1). The database used mainly contains food products.

In addition to prices, it contains a detailed description of the products. This makes it possible to identify products over time and to calculate price changes for each product from one week to the next.

The data collected requires statistical processing before it can be analysed. In particular, based on the product description, machine learning techniques – adapted to different languages – are used to identify the product family to which the monitored product belongs (e.g., "pasta" for a packet of spaghetti from a given brand) and thus classify the products according to the price index classification.[2]

T1 Size of price data samples collected on the Internet, from April 2022 to December 2024

(number of retailers and products in units, number of price observations in millions)

	Number of retailers	Number of products	Number of price observations
Euro area	10	106,622	62.7
Germany	3	42,952	19.6
Metropolitan France	3	25,441	17.1
Italy	1	11,634	8.9
Spain	3	26,595	17.1

Source: European Central Bank (*Daily Price Data Price-setting Microdata Analysis Network* – DPD PRISMA); authors' calculations.
Notes: Price data are collected online for several retailers by simulating purchases in different towns within a country. "Retailer": an online retailer's store located in a given town. Products available for less than 200 consecutive days are excluded. "Euro area": sum of the results obtained for Germany, France, Italy, and Spain.

1 Data collection complies with strict ethical standards. The targeted institutions are informed about web scraping, and the ECB has committed to these institutions to ensure data confidentiality. Web scraping follows protocols that minimise the impact on website traffic. The anonymised data provided to Eurosystem researchers ensures the anonymity of the institution and protects sensitive information.

2 The classification of products in the Classification of Individual Consumption by Purpose (COICOP) was conducted in collaboration between the ECB's DPD project and the BIS Innovation Hub of the Bank for International Settlements (Spectrum project). See also Leclair et al. (2019) for a description of INSEE's experience with supermarket checkout data.

BOX

What is price scraping?

This technique consists in automatically extracting data from web pages and then structuring them so that the information collected can be monitored over time. For example, a retailer selling products online publishes their characteristics and prices. Price scraping makes it possible to collect these data at regular intervals and therefore to analyse price trends for the same product.

This price data collection technique has developed significantly in recent years with the following two objectives:

- The first was to improve the measurement of inflation by statistical institutes by collecting prices that more closely reflect consumer purchasing patterns. Today, in addition to traditional price collection techniques that rely on field surveyors, many statistical institutes around the world use web scraping to collect large volumes of price data and use these online readings to construct price indices. This concerns a large array of goods and services, ranging from clothing (Chessa and Griffioen, 2019) to transport services such as rail and air transport, as well as electronic products, books and mobile phones. According to Eurostat (2020), at least 20 European countries use web scraping techniques to collect part of the price data used to measure inflation. In France, for example, the French National Institute of Statistics and Economic Studies (INSEE) uses these techniques to collect the prices of rail services actually paid by consumers (see Appendix 1).

- Beyond measurement issues, which mainly concern statistical institutes, the second objective of these web scraping tools is to help better understand and predict consumer price trends. One of the first initiatives to collect large amounts of price data on the internet was launched in 2008 in the United States (Cavallo and Rigobon, 2016): the Billion Prices Project (BPP) collected several million prices in more than fifty countries and analysed how prices varied depending on whether products were sold online or in stores (Cavallo, 2017).[1] Other online data collection initiatives are being carried out by central banks, particularly with a view to better forecasting inflation and its most volatile components. For example, the Polish National Bank's eCPI project (Macias et al., 2023) collects daily food prices from several retailers in Poland in order to forecast food price changes in real time and improve overall inflation forecasts.

1 See also Strasser et al. (2023) for an analysis of the euro area.

The database covers 55 categories of the "food and non-alcoholic beverages" division in the price index at the granular level (e.g., "01.1.1.1 Rice"), which has 60 categories. These 55 categories cover approximately 20% of household consumption in the euro area. Another challenge is to identify whether a price change is permanent or only temporary (e.g., during promotions). Temporary changes are identified using filtering techniques that detect changes due to a price decrease or increase, followed by a return of the price to its initial level.[3]

Chart 2 shows a few examples of weekly price trajectories for individual products in euro as collected for a one-kilogram packet of rice, a dozen eggs, and a one-litre bottle of olive oil.

3 A price change is considered temporary if the price falls or rises on a given date and then returns to the same level as before the fall or rise within a time interval of less than three weeks.

2 Understanding food price adjustments in the euro area

These trajectories show that a price can remain constant for several weeks and that price changes are infrequent because changing a price is a potentially lengthy and costly process for a retailer (searching information on cost increases and competitors' prices, communication with customers, including catalog costs, for example). A price may also remain unchanged because it is set by contract between the supplier and the retailer for a specific period. This may explain why a retailer does not change its prices continuously and why an economic shock can take several months to be passed on to prices. "What proportion of prices change each week" and "how large are the price changes?" are therefore two key questions for characterising retailers' price adjustment behaviour.

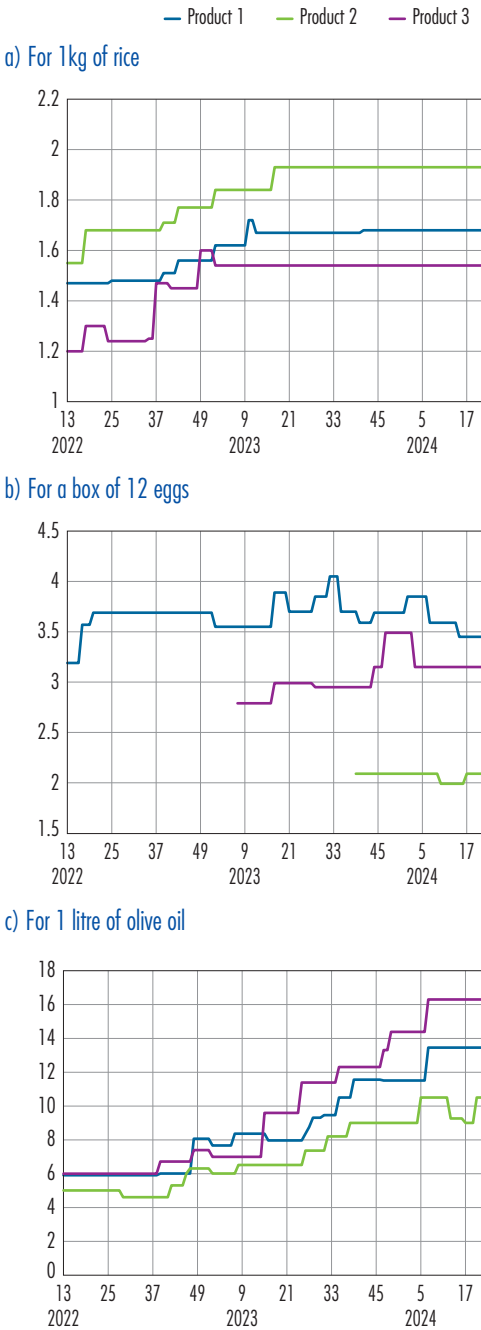
Each week, the price of 1 in 10 food products changes in the major euro area countries

Looking at all food prices collected between 2022 and 2024 in the four euro area countries, 1 in 10 prices changes on average every week. If temporary price changes (such as those linked to promotions) are excluded, this figure drops to an average of only 1 in 20, with prices remaining unchanged for around four months (see Table 2).[4] In other words, the price of a food product will change on average three times a year. By way of comparison, based on the monthly price observations used to construct the price indices in the euro area, Gautier et al. (2024) found that food prices are the prices that change the most frequently (excluding fuel prices), with an average price duration of less than six months. In contrast, service prices change much less frequently, less than once a year on average.

The differences are fairly limited among the four largest euro area countries, where the proportion of products whose prices change (including temporary promotions) is close to 10%. Spain stands out with a slightly higher proportion of 13%. However, it cannot be ruled out that the differences

C2 Examples of individual price trajectories

(prices in euro, weekly data)



Source: European Central Bank (*Daily Price Data Price-setting Microdata Analysis Network* – DPD PRISMA); authors' calculations.
Note: Prices in euro observed for three individual products per category of goods. Each product is sold in the same store in a given euro area country and for purchases made by consumers in a given town. On the x-axis, "2022-13" refers to the thirteenth week of 2022.

4 Statistics are measured at the individual product level and then aggregated at the country level using the weights of the HICP product groupings. The "euro area" aggregated results are then calculated as the average of these results obtained for the four main economies of the euro area (Germany, France, Italy, and Spain).

between countries also reflect differences between the online retailers from which prices were collected.

The differences are much more pronounced when comparing the average duration between two price changes for different products from the same retailer.[5] For example, for almost a quarter of products, the average duration between two price changes is less than three months, while for another quarter it is more than ten months (see Chart 3 below). Furthermore, it appears that for a significant proportion of products, prices remain unchanged for exactly six months or one year, which may reflect the existence of contracts that revise prices on an annual or biannual basis.

The average size of price increases is similar to that of decreases

If we consider the size of price increases and decreases separately, price changes are significant on average: as prices are not changed continuously but in a staggered manner, price changes reflect cumulative changes in production and distribution costs over several weeks or even several months. Thus, in absolute terms, both price increases and decreases are around 15%, slightly lower when temporary price changes (e.g. related to promotions) are excluded, as these are often larger in scale (see Table 3). Across countries, it is generally observed that when price changes are slightly more frequent, their size is smaller.

While in absolute terms average price increases and decreases are similar, the share of increases in price changes is slightly higher than that of decreases (56% compared with 44%). Thus, when considering all price changes (increases and decreases taken together), prices rise by 1.3% on average if temporary price changes are included, and by 1.6% if they are excluded (see Table 3). The proportions of increases and decreases are also fairly similar to those observed for all consumer price data over the same period (see Gautier et al., 2024).

The average price change over a week corresponds to the share of prices that change multiplied by the average size of the change. Each week, excluding temporary price changes, only 1 in 20 prices changes on average, and it increases by about 1.5%.[6] This implies that, overall, prices increase by slightly less than 0.1% on average over a week. Cumulatively over a year, this represents an increase of around 5%, which is roughly equivalent to the average food inflation rate over the period.

T2 Average weekly proportion of products whose prices change

(proportion in %, implicit duration in months)

	Total price changes			Excluding temporary price changes		
	Proportion of products whose prices change	Implicit duration	Proportion of increases among changes	Proportion of products whose prices change	Implicit duration	Proportion of increases among changes
Euro area	9.8	2.3	56.3	6.0	4.0	58.5
Germany	7.9	2.8	59.7	4.6	4.8	62.5
France	8.7	2.6	52.2	5.5	4.0	52.9
Italy	9.6	2.3	57.3	4.8	4.6	60.7
Spain	13.1	1.7	55.8	9.0	2.5	57.9

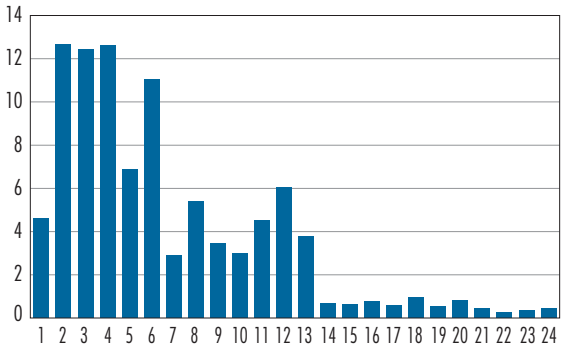
Source: European Central Bank (Daily Price Data Price-setting Microdata Analysis Network – DPD PRISMA); authors' calculations.
Notes: The proportion of price changes is calculated, over a given week, as the ratio of the number of products whose price changes to the total number of products subject to price observations. The implicit duration is calculated as the inverse of the proportion and converted into months. Percentage of increases: ratio of the number of positive non-zero price changes to the total number of non-zero price changes. "Euro area": average of the results obtained for Germany, France, Italy, and Spain. Temporary price changes are defined as cases where the prices decrease or increase on a given date and then return to the same level as before the fall or rise less than three weeks later.

5 The implicit duration is calculated as the inverse of the weekly proportion of price changes and converted into months.

6 As 58.5% of price changes are increases (see Table 2), averaging 12.7% in value terms (see Table 3), and 41.5% of changes are decreases, averaging –14.3% in value terms, the average price change is positive and around 1.5%.

C3 Average duration between two price changes

(x-axis: number of months, y-axis: % of products)



Source: European Central Bank (*Daily Price Data Price-setting Microdata Analysis Network* – DPD PRISMA); authors' calculations.
Note: The proportion of price changes is the ratio between the number of times the price of a product changes (excluding temporary changes) and the total number of price observations for that product. Duration: the inverse of this proportion. The distribution of durations is calculated from the durations measured at the individual product level (e.g., a package of pasta of a given brand sold in a given supermarket.

3 The inflationary episode affected price adjustment patterns in the food sector

The 2022-24 period is characterised by a significant change in the rate of food price inflation in the euro area. According to Eurostat, between April 2022 and March 2023, food prices rose by an average of 1% each month, while between April 2023 and the end of 2024, the monthly increase in prices was only 0.1%. This slowdown may be due to either less frequent price changes, or to smaller increases from 2023-24 compared to 2022-23.

Prices changed slightly more often between 2022 and 2023 than between 2023 and 2024

Between 2022 and early 2023, 8.6% of prices changed on average each week (excluding temporary price changes). This proportion then dropped to 5.5% between 2023 and the end of 2024 (see Chart 4). Given the scale of the commodity price shock in 2021, not adjusting prices and waiting was costly for distributors as it generated higher losses than usual. Furthermore, a large shock tends to be passed on more quickly to prices (see Gautier et al., 2023). Between 2022 and 2023, the average duration between two price changes was therefore shorter (two and a half months) than between 2023 and 2024 (four months) when commodity price shocks were smaller.[7]

Another major difference at the time of the upsurge in inflation is that the proportion of increases rose sharply: two-thirds of price changes were increases during the inflationary episode, compared with only one in two from mid-2023 onwards. This higher proportion of price increases in 2022-23 reflects the more frequent rises in commodity costs over the period.

The size of price increases and decreases remained the same during the inflationary episode

Taken separately, price increases and decreases remained of comparable size during the inflationary shock (around 15% in absolute terms). However, as there were relatively

T3 Average size of price changes

(%)

	Total price changes			Excluding temporary changes		
	Price change	Price increase	Price decrease	Price change	Price increase	Price decrease
Euro area	1.3	14.9	-16.1	1.6	12.7	-1.3
Germany	2.6	17.2	-18.1	3.3	14.8	-16.0
France	0.4	14.7	-15.0	0.2	12.9	-13.7
Italy	1.2	19.1	-22.7	1.6	15.0	-19.2
Spain	1.0	8.5	-8.4	1.2	8.2	-8.2

Source: European Central Bank (*Daily Price Data Price-setting Microdata Analysis Network* – DPD PRISMA); calculations by the authors.
Note: The average size of price changes is calculated as the average of non-zero price changes, including both increases and decreases. The average size of increases (decreases) is calculated from positive (negative) non-zero price changes. "Euro area": average of the results for Germany, France, Italy, and Spain. Temporary price changes are defined as cases where the prices decrease or increase on a given date and then return to their initial level less than three weeks later.

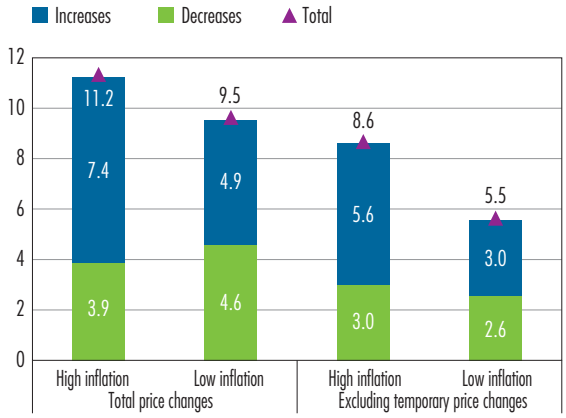
7 See Gautier et al. (2025) for similar results for all consumer prices in the euro area.

more price increases than usual, the average weekly price change (increases and decreases taken together) was much larger, reaching 4.1%, compared with 0.6% between 2023 and 2024 (see Chart 5 below).

Overall, weekly food price increases were stronger at the time of the shock's transmission (around 0.3%) than afterwards (close to 0%), as price changes were not only more frequent but also higher on average (the share of price increases in price changes was higher). By the end of 2024, food price adjustments had returned to their usual pace, with fewer price changes each week than during the inflationary period and an almost equal proportion of price increases and decreases.

C4 Average proportion of products whose prices change in a given week, during periods of high and low inflation (euro area)

(in %)



Source: European Central Bank (*Daily Price Data Price-setting Microdata Analysis Network* – DPD PRISMA); authors' calculations.
Key: During periods of high inflation, 8.6% of prices change in a given week on average, of which 5.6% increase and 3% decrease.
Note: Period of high inflation: between April 2022 and March 2023; period of low inflation: between April 2023 and December 2024. The proportion of price changes is calculated, over a given week, as the ratio between the number of products whose price changes and the total number of products for which a price is observed. "Euro area": average of the results for Germany, France, Italy, and Spain. Temporary price changes are defined as cases where prices decrease or increase on a given date and return to their initial level less than three weeks later.

This normalisation was made possible not only by an easing of international commodity prices, but also by monetary policy measures. These measures contained the spread of price increases to the entire economy, in particular by preventing inflation expectations from rising lastingly, which would have led to persistently higher inflation (see Dupraz and Marx, 2025).

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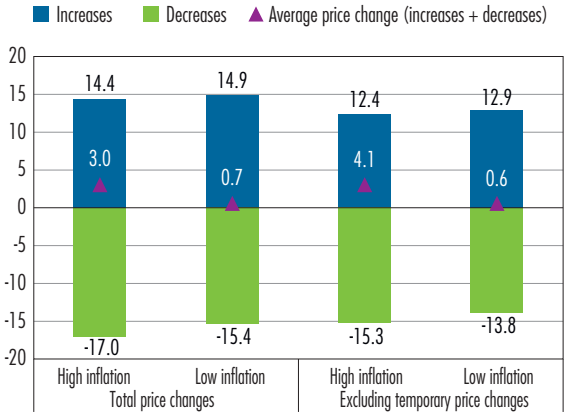
This analysis of food price formation during the inflationary crisis is an example of the use of data collected using web scraping techniques. Other examples include real-time monitoring of the pass-through of VAT rate changes to food prices in Spain (Forteza et al., 2024) and of the transmission of recent tariff increases to consumer prices in the United States (Cavallo et al., 2025). These analyses all highlight the value of having such data for the conduct of monetary policy in order to better understand the transmission of economic shocks to consumer prices.

C5 Average price change ranges during periods of high and low inflation (euro area)

(in %)



Source: European Central Bank (*Daily Price Data Price-setting Microdata Analysis Network* – DPD PRISMA); authors' calculations.
Note: Period of high inflation: between April 2022 and March 2023; period of low inflation: between April 2023 and December 2024. The average size of price changes is calculated as the average of non-zero price changes, including both increases and decreases. The average size of increases (/decreases) is calculated from positive (/negative) non-zero price changes. "Euro area": average of the results obtained for Germany, France, Italy, and Spain. Temporary price changes are defined as cases where prices decrease or increase on a given date and then return to their initial level less than three weeks later.

References

Aldama (P.), Le Bihan (H.) and Le Gall (C.) (2024)
"What are the causes of post-pandemic inflation in France?", *Blog post* No. 363, *Eco Notepad*, Banque de France.
Consult the document

Bignon (V.) and Gautier (E.) (2025)
"French households and inflation from 2022 to 2024 – How did they perceive the wave of inflation and its decline?", *Banque de France Bulletin*, No. 257/3, April 2025.
Consult the document

Cavallo (A.) (2017)
"Are Online and Offline Prices Similar? Evidence from Large Multi-Channel Retailers", *American Economic Review*, Vol. 107, No. 1, January, pp. 283-303.

Cavallo (A.) and Rigobon (R.) (2016)
"The Billion Prices Project: Using Online Prices for Inflation Measurement and Research", *Journal of Economic Perspectives*, Vol. 30, No. 2, Summer 2016, pp. 151-178.

Cavallo (A.), Llamas (P.) and Vazquez (F.) (2025)
"Tracking the Short-Run Price Impact of U.S. Tariffs", Harvard Business School, 12 June.

Chessa (A. G.) and Griffioen (R.) (2019)
"Comparing Price Indices of Clothing and Footwear for Scanner Data and Web Scraped Data", *Economie et Statistique / Economics and Statistics*, Vol. 509, pp. 49-68.

Dupraz (S.) and Marx (M.) (2025)
The benefits of well-anchored inflation expectations, *Blog post No. 396, Eco Notepad*, Banque de France, 20 March.
Consult the document

Eurostat (2020)
Practical guidelines on web scraping for the HICP.

Forteza (N.) Prades (E.) and Roca (M.) (2024)
"Analysing the VAT cut pass-through in Spain using Web scraped supermarket data and machine learning", *Working Paper*, No. 951, Banque de France.
Consult the document

Gautier (E.), Conflitti (C.), Enderle (D.), Fadejeva (L.), Grimaud (A.), Gutiérrez (E.), Jouvanceau (V.), Menz (J.-O.), Paulus (A.), Petroulas (P.), Roldan-Blanco (P.) and Wieland (E.) (2025)
"Consumer Price Stickiness in the Euro Area During an Inflation Surge", mimeo.

Gautier (E.), Conflitti (C.), Faber (R. P.), Fadejeva (L.), Jouvanceau (V.), Menz (J.-O.), Messner (T.), Petroulas (P.), Roldan Blanco (P.), Rumler (F.), Santoro (S.), Wieland (E.) and Zimmer (H.) (2024)
"New Facts on Consumer Price Rigidity in the Euro Area", *American Economic Journal: Macroeconomics*, Vol. 16, No. 4, October, pp. 386-431.

Gautier (E.), Le Bihan (H.) and Lippi (F.) (2023)
Why prices transmit large-scale shocks more quickly, *Blog post No. 324, Eco Notepad*, Banque de France.
Consult the document

Leclair (M.), Léonard (I.), Rateau (G.), Sillard (P.), Varlet (G.) and Vernédal (P.) (2019)
"Scanner Data: Advances in Methodology and New Challenges for Computing Consumer Price Indices", *Economie et Statistique / Economics and Statistics*, Vol. 509, pp. 13-29.

Macias (P.), Stelmasiak (D.) and Szafranek (K.) (2023)
"Nowcasting food inflation with a massive amount of online prices", *International Journal of Forecasting*, Vol. 39, No. 2, pp. 809-826.

Perrot (A.), Hémous (C.), Brand (T.), Chamouard (P.), Veillon (P.-A.), Bolliet (Q.) and El Issami (M.) (2022)
"L'inflation des produits alimentaires", Inspection générale des finances.

Strasser (G.) *and al.* (2023)
"E-commerce and price setting: evidence from Europe", *ECB Occasional Paper*, No. 320, European Central Bank.

Appendix 1
From what sources does INSEE collect price data to construct the consumer price index?

Statistical institutes, including the French National Institute of Statistics and Economic Studies (INSEE), independently produce price indices using individual price observations for actual purchases made by households for all the goods and services they consume. In France, INSEE now collects tens of millions of individual price data every month (see INSEE).

Two "traditional" collection methods are used to construct price indices:

- INSEE surveyors visit close to 30,000 points of sale to collect 160,000 price readings each month. Surveyors record the price as displayed and the characteristics of the item to ensure that the product is the same from one month to the next. This makes it possible to calculate price changes.[1]

- Some prices are collected from administrative sources such as comprehensive fuel price readings, administered prices or tariffs, as well as survey data for rents, for example.

New sources have been drawn on more recently and are tending to replace certain field surveys. These new sources are adapted to household consumption patterns but also to greater data availability.

- Since 2020, INSEE has included "scanner data" in its price index calculations. These data are collected when consumers go through supermarket checkouts and record the prices and quantities actually paid. In total, the prices of 80 million products in the consumer price index (CPI; i.e., 1.7 billion individual prices each month) are mandatorily reported to INSEE by large retailers for the construction of price indices (compared to 30,000 in-store readings in the same field previously). Thanks to these data, it is possible to very accurately measure price changes for industrial food products but also for certain "health and beauty" expenditures, as they provide precise information not only on prices (including promotions) but also on quantities.

- Finally, using web scraping techniques, 500,000 price readings are taken, in particular to measure the prices of transport services (air, rail, etc.). In order to track the volatile changes in certain prices, some readings are taken daily by simulating bookings according to buyers' profile, at different dates before departure, with or without discounts (i.e., a total of more than 10,000 different bookings each day).

Price sources may vary from one country to another, but in the euro area, statistical institutes are increasingly using scanner data and web scraping data to measure price indices.

1 These price readings have made it possible to analyse consumer price adjustment patterns in France and several euro area countries during periods of low inflation (Gautier et al., 2024) and during the recent inflationary cycle (Gautier et al., 2025).

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