

# The Consumer Price Index: changes for 2021

The Consumer Price Index (CPI) follows each month the prices of a fixed basket of products. This basket is updated each year in order to remain representative of the consumption and in order to take into account the evolution in the consumer habits (Laspeyres-type index). Each year, a chain-linking of the index is performed in January and enables to update the basket of products and their weights and possibly permits to introduce some methodological improvements.

## The update of the products in the CPI basket

Each year, the product sample is updated in order to take into account changes in the household consumption. The products that are no more representative in 2020 are dropped from the CPI basket meanwhile new products, which represent a huge or an increasing market share (health protection mask, for example), are introduced. It's also an opportunity to take into account new habits of consumption (internet consumption in particular) and sometimes to adapt the collection protocol to track prices at best. The number of prices collected by consumption segments is also optimized according to the weight of the consumption segment and the variability of the prices evolution (for example, the number of prices collected for the non-seasonal fresh produces has been slightly reduced in 2021). The prices of the new products of the CPI basket are collected from December 2020 in order to measure their price evolution between December 2020 and January 2021 and so that they contribute to the CPI from January 2021.

## The 2021 weights update

As every year in January, the weights of the Consumer Price Index (CPI) and the Harmonized Consumer Price Index (HICP) have been updated for the current year. They are used to aggregate the 21,000 indices calculated by family of elementary products and geographic area of collection. These weights represent the share of expenditure associated with the index concerned with regard to household consumption covered by the CPI.

In accordance with European regulations, these weights are usually updated based on semi-final estimates of consumption by the national accounts for year Y-2, valued at the prices of December of year Y-1 and possibly supplemented by volume corrections between year Y-2 and Y-1.

This method is usually acceptable to obtain representative weights of consumption for year Y-1 because changes in this consumption are slow. With the health crisis, however, the structure of consumption has changed markedly between 2019 and 2020. This is why additional work has been carried out in accordance with the new European directives<sup>1</sup> on updating weights in the event of a major shock on consumption.

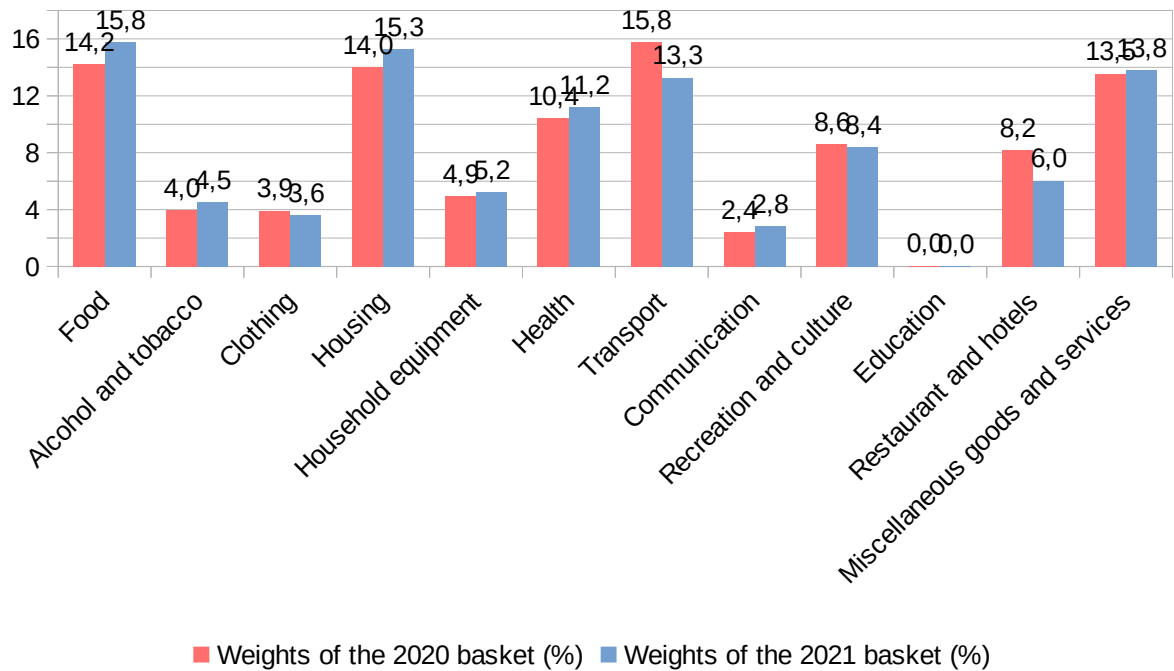
For the calculation of the 2021 weights, the first estimates of the quarterly accounts for the whole of 2020, used at a finer level of details than that at which they are published (95 positions), were used to apply changes to volume 2019 consumption amounts provided by the annual accounts. If necessary, adjustments have been made to an even finer level of classification by mobilizing turnover indices.

The weight in the 2021 CPI basket of food, but also housing, alcohol and tobacco, health or communication is thus greater than in the 2020 basket since these consumptions were maintained during the health crisis while overall consumption fell (figure 1). Conversely, the weight of transport, restaurant and hotels, recreation and culture is falling in the 2021 basket.

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1 <https://ec.europa.eu/eurostat/documents/10186/10693286/Guidance-on-the-compilation-of-HICP-weights-in-case-of-large-changes-in-consumer-expenditures.pdf>

Figure 1: weighting of consumption functions in the CPI basket for 2020 and 2021, in %



Scope: Metropolitan France

Source: Insee, quarterly accounts detailed results Q1, Q2, Q3 2020 and first estimate Q4 2020; semi-final national accounts 2019.

Reading note: The weight of food in the CPI basket goes from 14.2% in 2020 to 15.8% in 2021.

These differences between the 2020 and 2021 baskets have consequences on the measurement of the overall consumer price index, in particular because products with very seasonal or very volatile prices are not weighted in the same way in the two baskets. Thus, the weight of international air transport in the basket drops by 68% between 2020 and 2021, while its price varies according to very significant amplitudes (11% on average, in absolute value, from 2015 to 2020). The weight of tourism in the CPI (rental of rooms, camping, lodgings, etc.) has also fallen sharply, while its price variations are very seasonal (figure 2). As a result, the year-on-year changes in the CPI risk being affected since seasonal phenomena will have a different weight between 2020 and 2021. For instance, in January, the air transport price cuts after the seasonal increases in December will have a lower weight in the 2021 basket, which contributes to the year-on-year rise in the CPI. Conversely, the airfare increases in the summer will have a lower impact on the all-item index (figures 3 and 4).

Figure 2: Product categories whose weight changes sharply and with volatile prices

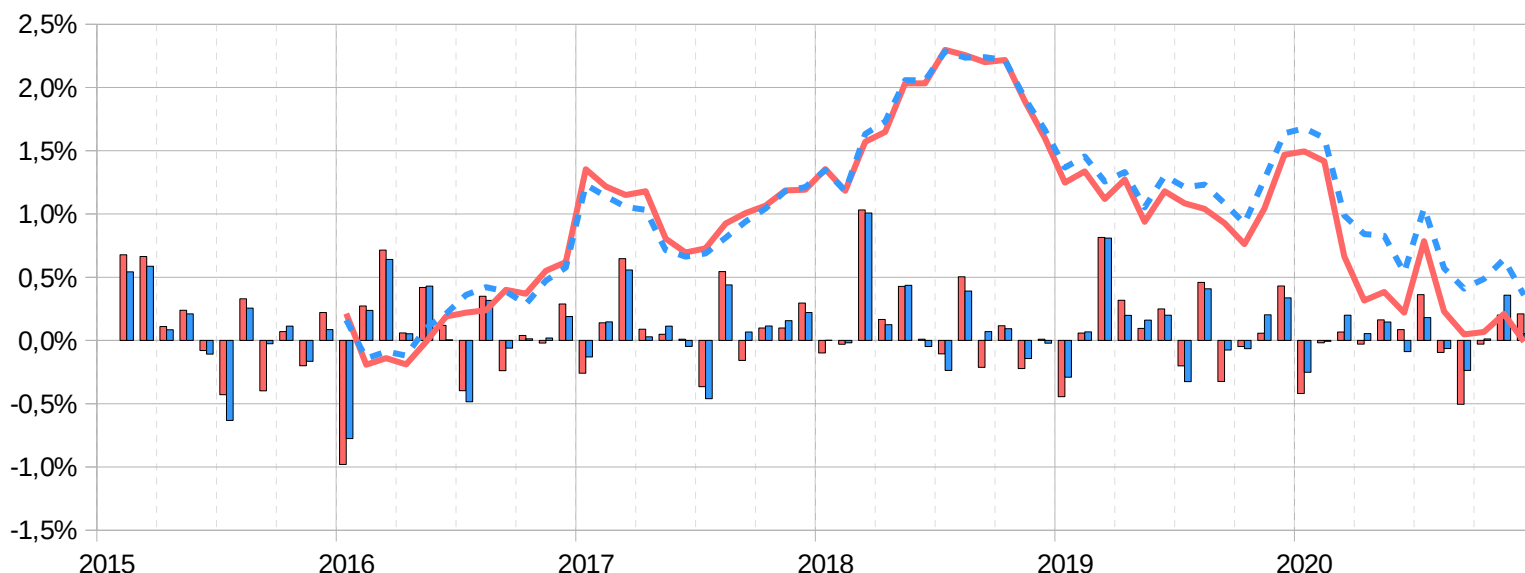
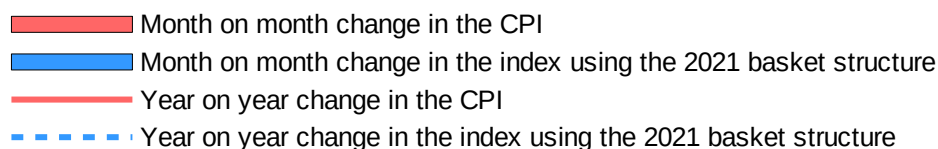
Product categories	2020 weight	Evolution 2021/2020	Average monthly change (absolute value)	Weight x Evolution x Average monthly change
International air transport	0,82 %	-68%	11%	0,060%
Holiday or leisure centers	0,16 %	-32%	25%	0,013%
Domestic air transport	0,25 %	-66%	8%	0,013%
Diesel	2,09 %	-26%	2%	0,012%
Campsites and youth hostels	0,45 %	-37%	5%	0,009%
Room rentals	0,80 %	-39%	2%	0,008%
Package international holidays	0,18 %	-36%	9%	0,006%
Petrol	1,43 %	-21%	2%	0,006%
Liquid fuels	0,69 %	-20%	3%	0,005%

Scope: Metropolitan France

Source: Insee, quarterly accounts detailed results Q1, Q2, Q3 2020 and first estimate Q4 2020; semi-final national accounts 2019; CPI.

Reading note: The international air transport item weighs 0.82% of the 2020 basket. In 2021 its weight will be reduced by 68%. With the absolute monthly change averaging 11%, updating the weight has an effect of around 0.060 points on the overall index.

Figure 3: CPI and price index using the 2021 basket structure



Scope: Metropolitan France

Source: INSEE, quarterly accounts detailed results Q1, Q2, Q3 2020 and first estimate Q4 2020; semi-final national accounts 2019; CPI.

Reading note: if the structure of consumption had been that of the 2021 basket since 2015, the monthly price change in December 2020 would have been + 0.1% compared to + 0.2% observed using the consumption structure used by the CPI (2019 consumption structure for the 2020 indices, year A-1 structure for year A). The year-on-year price change would have been + 0.4% with the 2021 basket versus + 0.0% for the year-on-year change in the CPI.

Figure 4: Month-on-month change in the CPI and the price index using the 2021 basket structure

Month	Month-on-month change in the CPI	Month-on-month change in the index using the 2021 basket structure
Jan 20	-0,4%	-0,3%
Feb 20	0,0%	0,0%
Mar 20	0,1%	0,2%
Apr 20	0,0%	0,1%
May 20	0,2%	0,1%
Jun 20	0,1%	-0,1%
Jul 20	0,4%	0,2%
Aug 20	-0,1%	-0,1%
Sep 20	-0,5%	-0,2%
Oct 20	0,0%	0,0%
Nov 20	0,2%	0,4%
Dec 20	0,2%	0,1%

Scope: Metropolitan France

Source: INSEE, quarterly accounts detailed results Q1, Q2, Q3 2020 and first estimate Q4 2020; semi-final national accounts 2019; CPI.

Reading note: with the consumption structure of the 2021 basket, the monthly price change in January 2020 would have been -0.3% against -0.4% observed using the consumption structure used by the CPI.

## The update of seasonal adjustments and seasonal adjusted indices

As each year, seasonal adjustments for the all-item index (France, all household) and for four indexes of core inflation have been revised over the period January 2000- December 2020. The coefficient estimate in 2020 and 2021 is complicated by the fact that the sanitary crisis could change the price seasonality without having the necessary distance to estimate that. The weight update in 2021 also changed the seasonality, by allocating a different weight for products with marked seasonal prices (transport, tourism). For this reason, the seasonal adjustments in 2021 have been estimated with the revised series taking into account the 2021 weights for the whole period of estimation.

## Greater use of hedonic models

When an item in the CPI basket disappears and needs to be replaced, the difference in quality between the product that disappears and the new one must be taken into account in the consumer price index, in order to measure price changes at constant quality. This difference in quality is most often estimated by overlap methods, which estimate the price evolution for the replacement products by that of the products present in the basket at both periods. A less widely used method is that of hedonic models which seek to explain the price of products by their characteristics. These methods are less used on the one hand because of their implementation cost but also because they require substantial price samples and the observation of many product characteristics to be relevant. To meet this limit, web-based robot collections or webscraping have been implemented to collect larger volumes of information on the prices and characteristics of electronic products. Hedonic models have thus been estimated for laptops (and used since 2020) and smartphones (since 2021). They complete the hedonic models previously used for dishwashers, televisions, washing machines, refrigerators and bestsellers.

## Collection schedule

The Consumer price index (CPI) is based on scanner data, price collected by collectors on the field or recorded centrally. The centralized collection is made throughout the calendar month.

The field collection is carried out according to a specific calendar fixed a year in advance<sup>2</sup>. This collection calendar differs from the civil calendar. Every month, prices for CPI are collected during 20 days, throughout the working days of four consecutive weeks.

Each product in the sample is tracked on a specific day among the 20 days of field collection (numbered from 1 to 20) and the price collector responsible for this collection returns every month to observe in the same outlet, the same product, the same day among the collection month: this organization ensures that we measure changes on average over a month, guarantees the opening of the outlet and neutralizes possible “day of the week” effects on the prices.

A calendar month consists of 28 to 31 days and doesn't correspond to a whole number of weeks. So, every year, INSEE adapts the field collection calendar so that the 48 weeks of collection coincide at best with the civil calendar. This adaptation consists of fixing weeks without collection, four on average in a year.

Regardless of this exercise, the month-on-month changes in the CPI integrate calendar effects which may affect the year-on-year comparability of monthly changes. In general, the calendar effects in the index level disappear after one or two months and are limited to specific consumption segments. For example, every year, the school holidays or some days off are not located on the same month. These generate variations in the index evolution for the accommodation and passenger transports. If such effects are seen, they are commented in the publication *Informations Rapides* published at the same time as the CPI. It is the same for the sale calendar when it changes.

The INSEE's field collection calendar aims as much as possible to reproduce the calendar effects: a shift in the sales observed in the civil calendar will have to be found, as far as possible, in INSEE's collection calendar.

In 2021, the field collection calendar is a little different from that in 2020. Indeed, in 2020 (as previously in 2013), it has been necessary to introduce a fifth week in the year without collection in order to insure that the beginning of the following collection coincides with the beginning of the civil year. The field collection calendar in 2021 has only four weeks without collection. The following table integrates the offset of winter sales.

Table 5 : Number of sale days in the civil calendar and the CPI calendar (with the postponement of the end of the winter sales at 2, March, 2021)

	Calendar	2015	2016	2017	2018	2019	2020	2021
<b>Winter sales</b>								
<b>January</b>	<b>CPI</b>	18	18	13	13	13	13	8
	<b>Civil</b>	25	26	21	22	23	24	12
<b>February</b>	<b>CPI</b>	12	12	17	17	17	7	20
	<b>Civil</b>	17	16	21	20	19	4	28
<b>March</b>	<b>CPI</b>	0	0	0	0	0	0	2
	<b>Civil</b>	0	0	0	0	0	0	2
<b>Summer sales</b>								
<b>June</b>	<b>CPI</b>	3	3	0	0	0	0	3
	<b>Civil</b>	7	9	3	4	5	0	8
<b>July</b>	<b>CPI</b>	19	19	17	18	18	3	16
	<b>Civil</b>	31	31	31	31	31	17	20
<b>August</b>	<b>CPI</b>	2	2	7	7	7	12	0
	<b>Civil</b>	4	2	8	7	6	11	0

Note: The January CPI index included 13 days of sales in 2020 and 8 in 2021 (out of 20 days of price collection); the January civil month included 24 days of sales in 2020 and 12 in 2021 (out of 31 days).

<sup>2</sup> For scanner data, the collection follows the field collection calendar but including on Saturdays and Sundays.