

## How to compute a Consumer Price Index in the context of the Covid-19 crisis ?

The health crisis and the lockdown measures in the context of the Covid-19 crisis have important impacts on the measures of short term statistics such as the Consumer Price Index (CPI). These statistics are all the more important to understand economic stakes during this period.

On the one hand, **in order to preserve price collectors but also consumers and salesmen, INSEE has adjourned the collection of prices by Insee collectors in physical outlets since March the 16th**. These prices collected on the field are only one data source among others used to compute the CPI; however, they represent about four tenth of the CPI, in term of consumption share.

On the other hand, CPI aims to describe an average measure of price changes for all the purchased items. The basket of products is yearly renewed but it remains fixed during a year; the slow changes in the consumption structure ensure that this basket fixity is globally neutral on the inflation measure. **The current health crisis disrupts deeply and suddenly the household consumption structure during the lockdown** either because the consumption is prevented by the impossible move of households (transport, tourism), or because outlets are closed (the implementing order of 15 March 2020 related to measures for the struggle against the Covid-19 spreading defines the first necessary outlets that are allowed to remain opened), or because confronted to the crisis, the households decide to adapt their consumption habits (food, for instance).

The current note details the quality of the March index, which is still little impacted by this double issue because the beginning of the month occurred before the lockdown measures; it also provides some clues about the way, INSEE plans to produce the April index, by following the [Eurostat guidelines](#), shared with the different European countries.

### 1 - In March, the Consumer Price Index quality is still little impacted by the health crisis

#### 1.1 - The consumer price index uses numerous data sources, which are not all impacted by the health crisis

In order to compute the French CPI, INSEE uses different sources:

- Price collection carried out by INSEE collectors in physical outlets represent about four tenth of the index; this collection is the one impacted by the health crisis since the price collectors have stopped moving on the field since March the 16th. About one fifth of the 160 000 monthly collected prices are therefore missing in March 2020. These missing prices impacted the quality of the index. This impact is more important in overseas territories than for the metropolitan France because of the less important use of other data sources. They are particularly important for fresh food products, food sold in other outlets than super and hypermarket, clothing and footwear, furniture, sustainable goods (except cars), other manufactured products (except cleaning and maintenance products and articles for personal hygiene and beauty products), other services (hotel and restaurant, services provided by craftsmen, cleaning services, hairdressing, mechanic...). In these cases, missing prices were imputed thanks to the price changes observed at the beginning of the month.

- The use of scanner data from super and hypermarkets (one tenth of the index in term of consumption share) as well as those from pharmacy is unaffected by the health crisis. These data register prices when a transaction occurs during the month; except some scarce products as champagne for instance, less purchased and for which some prices may miss for lack of sales, the other product prices were observed without difficulty.
- Prices are also collected online; this online price collection was carried out even after the lockdown. Online price collection is used mainly for transport services, tourism, communication services, gas, electricity, insurances, financial services and some manufactured goods and cultural services.

For transport and tourism, prices are usually collected in advance and are registered in the index, the month when the service is provided; flights that have been deleted because of the health crisis were withdrawn from the price sample and their price changes were imputed from those of the maintained flights<sup>1</sup>.

- Some prices are collected thanks to dedicated surveys like rents (the rents and charges survey, the social housing landlord survey); these prices were collected as usual.
- Some prices come from administrative data, mandatory declarations or are official tariffs; in this case, data collection was not impacted by the health crisis; it is the case for fuel prices, health service prices, tobacco prices...

A table in the section “data” attached to the CPI dissemination “Informations rapides” for March provides information for each index about the imputation rate due to the health crisis.

For the all-item index, about 9.7% of the CPI basket was imputed because of the aftermath of the lockdown. These missing prices were imputed using the price changes observed at the beginning of the month.

## **1.2 Collection calendars for some data were initially centred on the beginning of the month**

The Consumer price index tracks averaged changes in the prices over the month. However, depending on the products, the price collection does not occur every day of the month. It is carried out according to different collection calendars defined in order to take into account different constraints. For instance, in order to collect a price in a given outlet, the opening days have to be taken into account; or in order to reflect properly the shift in the calendar of the sales or of the holidays, the collection calendar is adapted.

Because of these issues, prices taken into account for the March index that came from scanner data or from the field collection should have occurred from the 24<sup>th</sup> of February to the 22<sup>nd</sup> of March (it has been shortened indeed by a week for the field collection due to the lockdown); price collection for tourism stopped the 13<sup>th</sup> of March, as initially foreseen.

Contrariwise, price collection for transport, health services or fuel is carried out during the whole month.

Because of these different collection calendars, the CPI is more representative of the beginning of March. It enables however to assess the impact on prices for some products of the beginning of the lockdown and of the previous week, during which a huge increase of the food purchase was observed.

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<sup>1</sup> The CPI is a Laspeyres type index and therefore, the structure of the flights included in the CPI basket is fixed. Consequently, it is necessary to impute the price changes for cancelled flights ; see part 2 about the difficulty to produce a CPI when consumption segments disappear.

Aggregates	Collection issues
<b>Food</b> Freshfood produces	Field collection stopped the 13 <sup>th</sup> of March
Food except freshfood produces	Scanner data up to the 22 <sup>nd</sup> of March for super and hypermarkets (except for meat, cheese...) Field collection adjourned the 13 <sup>th</sup> of March for the remaining products and outlets
<b>Tobacco</b>	<b>Collection as usual</b>
<b>Manufactured products</b> Clothing and footwear Health products Other manufactured products	Field collection adjourned the 13 <sup>th</sup> of March  For medicine, collection as usual Field collection adjourned the 13 <sup>th</sup> of March for the remaining products  Field collection adjourned the 13 <sup>th</sup> of March Scanner data up to the 22 <sup>nd</sup> of March for the hyper and supermarkets
<b>Energy</b> Petroleum products	<b>Collection as usual</b> Collection as usual
<b>Services</b> Rents and other services related to dwelling Health services Transport services Communication services Other services	Collection as usual Collection as usual Collection as usual Collection as usual  Field collection or tourism collection adjourned the 13 <sup>th</sup> of March Centralized collection as usual

## 2 - A larger number of prices will be missing for the April index

In compliance with the European guidelines, INSEE tried to compensate the consequence of the missing manual price collection for the April month by developing new types of collection.

- When outlets usually visited have a website and are still opened or at least offer an online trade, price are collected online.
- Additional prices are collected on pure player websites, in order to mimic the consumer behaviour, forced to change his consumption habits.
- Some scanner data were usually unused (for clothes or sustainable goods sold in super and hypermarkets or for some small shops); they are used in order to register the prices of products that belong usually to the CPI basket.

Moreover, numerous consumption segments disappeared with the health crisis and the consumption structure is disrupted.

In compliance with [the methodological guidance note of the compilation of the HICP in the context of the covid-19 crisis](#) by Eurostat,

- The CPI remains a fixed basket indice and the weights for each consumption segments remain unchanged (that is to say the one observed for the year 2019): for instance, whereas the household

food expenditures increase with the lockdown, the food weight remains the one observed before the health crisis.

- When a consumption segment is not transacted any more, its price cannot be observed; the sub-index is consequently imputed (i) either with the price changes of similar product or of the nearest higher aggregate (ii) or with the all-item index, (iii) or in duly justified circumstances, by carrying forward the last observed price. Moreover, when the price of a product follows a highly seasonal pattern, the imputation shall reproduce the past seasonality.

A release, with the dissemination of the final April CPI estimate, will precise the treatment implemented by INSEE.