

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

Provisional estimate-November 2020

The health crisis and the lockdown measures in the context of the Covid-19 crisis have impacts on the measures of short term statistics such as the Consumer Price Index (CPI).

On the one hand, **in order to preserve price collectors but also consumers and salesmen, INSEE adjourned the collection of prices by INSEE collectors in physical outlets from the 16th March to 15th June 2020¹ and again since the 30th of October in the territories where a lockdown has been implemented.** These prices collected on the field are only one data source among others used to compute the CPI; however, they represent more than four tenth of the CPI, in terms of consumption share. **Their adjournment impacted temporary the quality of the CPI from March to June 2020 and since November. They had no impact from July to October 2020.**

On the other hand, CPI aims to describe an average measure of price changes for all the purchased items. The basket of products is renewed yearly 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 Covid-19 crisis disrupted deeply and suddenly the household consumption structure** either because the consumption was prevented by the impossible move of households (transport, tourism), or because outlets were closed (in particular, during the lockdowns), or because confronted to the crisis, the households decided to adapt their consumption habits (food, for instance).

In compliance with [Eurostat guidelines](#), shared with the different European countries, INSEE carried out new collection methods and adapted imputation methods.

1 – How to measure inflation when the price collection in the field is adjourned?

1.1 – To mitigate the adjournment of price collection on the field in November, INSEE carried out alternative kinds of price collection, as during the spring.

Usually, about 160 000 prices are collected each month by INSEE's price collectors in physical outlets. INSEE uses other data sources but this on-the-field collection represents more than four tenth of the CPI basket. They are particularly important for fresh food produces, food sold in other outlets than super and hypermarkets, clothing and footwear, furniture, durable goods, 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...).

1 This adjournment lasted up to the 20 September in French Guyana, where price collection in physical outlets have resumed since this date.

This price collection on the field has been adjourned from the 16th March to the 15th June and since the 30th November. As it was also done in other European countries and in compliance with the European guidelines, INSEE tried to compensate the consequence of the missing manual price collection for the month of November by developing new types of collection.

- When outlets usually visited by price collectors have a website and are still opened or at least offer an online trade, prices are collected online. Products concerned are mainly fresh food produces, meat, cheese, bread sold in super and hypermarkets, food products sold in minimarkets, hard-discounters... as well as clothes, durable goods and some other manufactured products.
- Some scanner data were usually unused (for clothes or durable 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.
- A price collection by phone was performed for services and in some small shop (bakery, butchery, cheese shop, fish shop, greengrocer's...).

This alternative price collections do not mitigate completely the adjournment of price collection on the field : the number of prices used in order to compute the CPI is really below the usual standards and consequently, all the estimation are less precise. However, this fall in the collected prices is less important than in April because some services closed during the spring were open in November and answered to our price collectors and also because more outlets provided a 'click and collect' or a 'call and collect' service.

1.2– The CPI is usually built from various data sources, most of which were not impacted by the health crisis.

In order to compute the French CPI, INSEE uses different data sources. Prices collected on the field by price collectors are impacted by the health crisis but it is not the case for the other data sources that remain available.

- The use of scanner data is not impacted by the health crisis. Scanner data are used in order to follow manufactured food, cleaning and maintenance products and articles for personal hygiene and beauty products sold in super and hypermarkets (one tenth of the index in term of consumption share) as well as medicine sold in pharmacy.
- Prices are also collected online; this online price collection was carried out even during the lockdown. Online price collection is used mainly for transport services, tourism, communication services, gas, electricity, insurances, financial services, 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; the prices of these services when they have been cancelled because of the health crisis were not taken into account to calculate the indice.

- Some prices are collected thanks to dedicated surveys like rents (the rents and charges survey, the social housing landlord survey); the prices of the rents and charges survey obtained from households were collected by phone (with a lower answer rate).
- 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...

1.3– To what extent does the CPI for November 2020 measure correctly the lockdown measures?

The Consumer price index tracks averaged changes in the prices over a given month. However, depending on the products, the price collection does not occur usually 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 November index that came from scanner data or from the field/alternative collections (collection online, by phone) occurred from the 26th of October to the 20th of November; prices for tourism were collected from the 17th of October to the 13th of November. Contrariwise, price collection for transport, health services or fuel was carried out during the whole month.

Because of these different collection calendars, sometimes shifted with reference to the calendar month, some prices might have been collected before the lockdown period (that began the 30th October) for some products that have been no more available since (restaurants, show...).

Last, as for every provisional estimate, the whole observations are not known when the estimate is calculated.

2 – How to measure inflation when whole parts of the consumption disappear?

During the lockdown, some consumption segments simply disappeared (shows, tourism, restaurants, hairdresser, cars, guiding lessons...) either because these activities were not allowed according to the implementing order of 15 March 2020 related to measures for the struggle against the Covid-19 spreading, or because households adapted their consumption. Since the end of the lockdown, the 11 May, reopening of outlets has been progressively authorized and the structure of the consumption has got closer to what it was before the lockdown. However, some gaps still existed, for instance for transport, tourism, cultural services. Since the end of September, health restrictions have prevented again the consumption of some services (bars, restaurants, gyms) in alert zones. The current lockdown (since the 30th of October) has prevented the purchase of numerous services.

The consumer price index which is a fixed-basket index (a Laspeyres-type index) uses a fixed consumption structure, updated each year. The assumption is that this structure slowly evolves and is usually true. But it does not fit the huge shock that occurred on the consumption structure during the health crisis².

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 index 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.

² Since April, INSEE has published with the definitive Index release an alternative index that used the consumption structure observed during 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 scarcely, 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 reproduces the past seasonality. The three methods were used.

Finally, the share of imputation due to the Covid-19 is about 15% in the November all-item index; these imputations include both missing data due to the adjournment of the price collection and the disappearance of some consumption segments. They did not take into account the usual imputation made for a provisional estimate (because some information are not available yet).