Compilation of CPI in times of COVID-19

To assist countries in the production of the CPI during the COVID-19 crisis, this website includes:

- Brief on general challenges and recommendations on how to ensure the production of the CPI
- Guidance and papers on continuing compilation of the CPI
- Link to online tool for collecting prices on the web
- Discussion forum for experts to share questions, experiences and good practices in the "Comments" field at the bottom of the website for registered users. Please follow this link to register.

If you or your organisation have material that could be useful to share you may send this to Carsten.Boldsen@un.org to be posted on the website.

**Brief on general challenges and recommendations**

**Data collection**

Price collection may be restricted due to closed outlets or price collectors may not be allowed to work or enter outlets. It may also be that outlets do not provide the usual set of prices through other channels (e.g. on paper or via e-mail) and/or may be shortage of staff in the main office to receive and process the prices that are received. Alternative modes of price collection include telephone, e-mail, online prices and scanner data. However, it may be difficult to ensure a minimum coverage of all products (goods and services). In particular, this may be the case for products for which price collectors usually collect prices. This could, for example, be the case for clothing and fresh food in many countries. In such cases the statistical office may have to rely on collecting a minimum of prices for the most important or the most representative products.

**Compilation**

For imputation of observations the general recommendation is to follow a bottom-up approach. This means that the first choice is to impute missing prices with observed price developments of similar products or products that are expected to have similar price developments. If such product prices are not available, the next choice will be to impute the missing prices with the average price development of the product group or the elementary aggregate to which the product belong. If these are not available, the closest available higher-level price index should be used for the imputation.

In some instances it may not be possible to collect prices for specific product groups or elementary aggregates or even indices above the elementary aggregate level. In such cases the price development of the product group or the elementary aggregate may be imputed by the price development of similar product groups or elementary aggregates. If this is not possible, the price development may be imputed by the higher-level index in which the product group or the elementary aggregate enters. However, imputation of a missing elementary aggregate by the overall CPI may also be justified. This corresponds to leaving the elementary aggregate out of the calculation of the CPI. This may be the preferred option if households’ expenditures on an elementary aggregate is assessed to be zero or close to zero. In some countries this may be the case for e.g. international travels, domestic airline travels, child care and sports and cultural events.

These are general recommendations. National circumstances and knowledge of the developments for particular markets and products must be considered. In all cases, it is important to apply imputation methods that ensure the index reaches the correct level when again it becomes possible to collect prices and include them in the index. Also, methods and procedures should be documented to assist continuing production of the CPI and for information of users.

**Communication**

It is important to be transparent to ensure the public trust in the CPI. To this end, good practices for dissemination and communication of official statistics should be followed. This implies that expected changes should be communicated to users in advance, including also information about possible delays of the publication of the CPI. Important changes should be documented and communicated to users when the CPI is released. For instance, if imputations are made or products are left out of the calculation, this should be documented. Impacts on the quality or reliability of the CPI may also be mentioned.

**Guidance notes and papers**


Consumer Price Index. Continuity Guidance by IWGPS. Presentation slides. UNECE

Guidance on the compilation of the HICP in the context of the COVID-19 crisis. Eurostat

Guidance note on HICP issues emerging from the lifting of lockdown measures. Eurostat

Guidance on the compilation of the house price index and the owner-occupied housing price index during the covid-19 crisis. Eurostat


Coronavirus and the effects on UK prices. Plans for data collection, compilation and publication of various prices statistics following movement restrictions as a result of the coronavirus (COVID-19) pandemic. Office for National Statistics, United Kingdom

How to Produce a CPI in a Covid-19 context? The French experience. Marie Leclaire, INSEE

Impact of imputation methods on the CPI and HICP in view of the COVID-19 crisis. Koen Link and Antonio Chessa, Statistics Netherlands

Statistics South Africa publishes weekly inflation of essential items during COVID-19 lock down
Tracking the Covid-19 crisis with high-resolution transaction data. Cambridge Working Papers in Economics. Vasco M. Carvalho, Juan R. Garcia, Stephen Hansen, Alvaro Ortiz, Tomasa Rodrigo, José V. R. Mora and José Ruiz.

Producing the CPI and the COVID-19 pandemic in Latin America and the Caribbean. UNECLAC

Measuring Real Consumption and CPI Bias under Lockdown Conditions. W. Erwin Diewert and Kevin J. Fox. NBER Working paper series, May 2020

Measuring Real Consumption and CPI Bias under Lockdown Conditions. W. Erwin Diewert and Kevin J. Fox. Presentation slides

**Webscraping**

An introduction to webscraping using R. Randi Johannessen, Statistics Norway

**RobotTool for collecting prices on webpages. Statistics Netherlands**

RobotTool is the publicly available, free of charge version of the software used by price analyst at Statistics Netherlands to detect price changes of selected products on websites. RobotTool is a semi-automated scraping tool that makes it easier and faster to monitor on-line prices for selected products on the web.