

The Hungarian Central Statistical office has tailored some of its activities in response to the Covid-19 crisis, as shown below.

Data collection - surveys

- HCSO's self-developed monitoring system has been greatly beneficial, as it enables real time surveillance of all data collections. The monitoring information has shown no extreme decline in response rates in the case of data collections on enterprises.
- We keep in close contact with our data providers and economic bodies to better understand the difficulties they are facing and to gather proxy information on the characteristics of their activities. We also fine-tuned the coding of non-response in order to make imputation more precise under these special circumstances.
- Statistics on causes of death have gained relevance; therefore, all tasks were rearranged to fit weekly periodicity – as opposed to annual, as formerly done.
- HCSO made the decision to stop face-to-face interviews for surveys, and use the CATI method instead.

Methodology - imputation

The right imputation techniques are essential in ensuring the reliability of estimates during the periods affected by Covid-19. A short methodological recommendation has been produced and distributed for internal use on how to develop such imputation solutions.

There are two types of cases for the imputations:

- The first is when there is already an imputation solution in place for data processing, but due to the changed operational environment caused by Covid-19, these methods need to be revised and changed. This is typically the case for statistics when imputation is based on data from previous period or from the same period previous year, especially when no correction for the dynamics is built into the solution.
- The second covers statistics where imputation needs to be introduced, and there is no previous method for imputing missing data for the given statistics. In these cases, the methodologists and subject-matter domain experts always analyse the already available administrative data or data from other data collections that could be used to provide a sound basis for imputing data.

The developed new or modified imputation methods are tested on real data before being used in production. As an example, new imputation methods are being developed for data from the report on general practitioners' and family paediatricians' activities or for R&D statistics.

If there is reliable information during data collection indicating there is missing data in a dataset due to Covid-19, then this information will help the development of imputation techniques. It is also worthwhile noting that even during the Covid-19 period, there are cases when missing data is not the result of the Covid-19.

Dissemination – communication

During the Covid-19 crisis, the HCSO's main communication goal is to keep both users and data providers informed. It is important to ensure data quality during the current fast-changing conditions; therefore, HCSO is focused on helping data providers continue to answer surveys.

The HCSO launched **a Coronavirus platform** on its website in March informing about the social and economic effects of COVID-19 to help users find content on this subject. We have published several analyses and data visualisation content about the consequences of the pandemic, including an analysis about how different regions in Hungary may be affected by the pandemic and ongoing economic changes. This information has been widely highlighted by the press.

HCSO has also started a **Thank you campaign**, with a series of infographics to express our gratitude towards employees in particularly important sectors, such as health care or commercial workers. Likewise, HCSO features this information on its most popular social media platforms.

As part of our outreach activities on our website, we publish frequent announcements in relation to changes in data collections, personal customer service and data releases and publications in our monthly release calendar. We also provide information on our most frequently asked methodological questions, such as data about mortality.

In addition, all publications (first releases, analyses) are accompanied with information about the effects of Covid-19.

Statistics – seasonal adjustments

During the process of seasonal adjustment, outliers of time series are always detected. Starting with March 2020, the detected outliers are typically caused by the presence of the Covid-19 virus. From the detailed results of seasonal adjustment, the effect of these outliers can be filtered. The outlier-filtered time series can be presented as an estimation of what would have happened without the virus. The difference between the real and the estimated data was calculated on the percentage change compared to the same period last year on calendar effect filtered data. If this new information is deemed to be relevant to the users, it is presented in our regular publications. Such analysis has already been carried out for time series data on tourism, industry and retail trade.

In response to the current situation, a dedicated survey has also been designed: a weekly ad-hoc module of HU- LFS on the impact of the COVID-19 epidemic on the labour market. In addition, another survey has been prepared concerning household consumption and attitude issues related to COVID-19 as a biweekly module for HBS.

Statistics – new Covid-19 survey

The Hungarian Central Statistical Office is deeply involved in a representative survey, which started on 1 May in the fight against the COVID-19 outbreak. The goal of the research is to provide an accurate picture of the spread of the outbreak, and gain insight into the actual number of those infected with the new type of coronavirus, including asymptomatic carriers. The nearly 18,000 participants, aged 14 years and older, were invited based on a random sample created by the HCSO, covering the entirety of the country. The results are expected to be published in the second half of May, and the representative sample makes the study of the results by age-groups breakdown possible as well.