

- **The HCSO should verify the importance of internet purchases and mail orders and, if necessary, include them in the sample.**

This recommendation has been fully implemented. Since the last compliance monitoring, the importance of internet purchases has been analysed. As a result, they were implemented into the sample of CPI/HICP from December 2020. Price quotations are observed from the most important web shops or intermediary sites, where the internet purchases are considered significant. These include large and small electric appliances, accommodation and package holiday reservations. Food delivery ordered via the internet and package delivery services are also included since December 2021. The internet purchase prices are observed in about 36% of elementary aggregates (weighted share). For at least half of the elementary aggregates (weighted share) are accounted for internet purchases in the following COICOP groups: 01, 02.1, 05.3.1, 05.3.2, 07.2.1.3, 07.3.3, 07.3.6, 08.2, 08.3, 09.1.1-4, 09.4.2.3, 09.6, 11.2, 12.1.2, 12.1.3, 12.5.

- **The HCSO should apply price-updating to December t-1 at least at the subclass level (5-digit), or below. The HCSO should investigate the feasibility of subdividing the elementary aggregates by region and by outlet or outlet-type in order to obtain a more detailed lower-level weighting structure.**

This recommendation has not been implemented. The HCSO currently applies price updating of the weights to December t-1 on the COICOP 4-digit level as they find it the most appropriate for this step, since below there are too many subgroups with few elementary aggregates. HCSO should increase the sample size and the number of elementary aggregates to price update weights at the lowest level of ECOICOP and in the future COICOP 2018.

- **The HCSO should investigate the feasibility of subdividing the elementary aggregates by region and by outlet or outlet-type in order to obtain a more detailed lower-level weighting structure.**

This recommendation has not been implemented. The sample size of the HICP is currently not large enough to create representative samples for each elementary aggregate below the country level. HCSO should consider increasing the sample to allow the compilation of regional sub-indices and by outlet-type.

- **The decision on whether replaced and replacement product-offers are comparable should not be based on pre-defined price change thresholds but rather on a comparison of the products' and outlets' price-determining characteristics. The HCSO should develop its price collection survey so that sounder replacement and quality adjustment decisions can be made.**

This recommendation has not been implemented. HCSO did not develop its price collection survey. Currently the price survey of the HCSO does not collect price-

determining characteristic for each product. HCSO still views the price change as an important factor for determining quality adjustment decisions, since they believe it comprises info on all price-determining characteristics. However, replacements should be made based on the representativity and similarity criteria and the assessment of the need and of the value of the quality adjustment should be based on the comparison of the utility provided by the characteristics of the replaced and the replacement product.

- **The HCSO should carry out research with a view to reduce the systematic application of bridged overlap and increase the use of explicit methods.**

This recommendation has been fully implemented. The systematic application of bridged overlap has been revised and modified in recent years. Quality adjustments are implemented on a case-by-case basis (i.e. for each replacement), based on the information available related to the replacement such as characteristics, prices and discounts in either the old or new product. The appropriate method is chosen from the following: direct comparison and package size adjustment (for food and other frequently bought consumer goods), bridged overlap, bridged overlap adjusted with discounts (for clothes and for most electric appliances, excluding computers), option pricing (for cars, either new or second-hand, and computers). The modifications are in effect since 2020.

- **The HCSO should examine if counter-seasonal estimation instead of all-seasonal estimation could be applied to clothing and footwear.**

This recommendation has not been implemented. The HCSO continues the use of all-seasonal and does not intend to change it.

- **The HCSO should examine if the minimum standards of the Regulation No 330/2009 could also be applied to seasonal products other than fruits, vegetables, clothing and footwear.**

This recommendation has been fully implemented. The HCSO examines whether a new elementary aggregate should be treated as seasonal. Besides fruits, vegetables, clothing and footwear, seasonal estimation methods are applied on other products such as air conditioners, heating appliances, energy products (such as solid fuels for heating), electric appliances and furniture used in gardens.

- **The HCSO should carry out studies on extending the use of the geometric average of prices to more elementary aggregates.**

This recommendation has not been implemented. The HCSO still uses arithmetic average of prices and Dutot-index formula for most of its elementary aggregates.

2. Additional measures to improve the quality of the Hungarian HICP

According to HCSO, the main priority of national CPI/HICP quality improvement is related to implementing new data sources, which could complement or substitute traditional data collection methods. For this purpose, web-scraping data seems to be the most promising, since acquiring scanner data is hindered by the reluctance of data providers who consider these data as confidential and company secret. In the last two years, several web scrapers have been developed, some are already used in the compilation (second-hand cars, fuels), and others are still in development and data validation stage such as holiday accommodations and web shop data from a big FMCG retail chain.

Research projects regarding these new data sources also have secondary benefits. For example, a new machine-learning algorithm was developed to classify these data into COICOP groups automatically with quite high accuracy. Besides, new data sources also helped the annual revision and update of elementary aggregates' and product definitions.

3. Conclusion

Eurostat takes good note of the measures implemented by HCSO to improve the quality of the Hungarian HICP. HCSO should continue to implement improvement measures, particularly those related to the recommendations on:

- weights – price update at COICOP 5-digit level or below.
- replacement and quality adjustment – choose the replacements according to the most similar and representative item/variety within the same product, and collect product characteristics for explicit quality adjustments.
- index calculation – discontinue the use of Dutot.