

## Methodological note

# GUIDANCE ON THE COMPILATION OF HICP WEIGHTS IN CASE OF LARGE CHANGES IN CONSUMER EXPENDITURES

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## 1. Introduction

The COVID-19 pandemic has a significant impact on household consumption expenditure. Consumption patterns observed in normal times have been disrupted during and after lockdown periods as households are adjusting their consumption habits to the new circumstances. For some products, changes in consumption expenditure may only be temporary while for other products, the changes could be more long lasting.

Following standard practice, the HICP weights used in 2020 were updated at the beginning of the year and they are kept constant throughout the year. They reflect the household consumption expenditure patterns of the previous year. As such, the weights used in 2020 do not reflect any impact of the COVID-19 crisis. Various studies exist that provide numerical estimates of the changes to the expenditure structure, including on their potential impact on consumer price indices<sup>1</sup>.

The next weight update for the HICP is scheduled to be implemented with the January 2021 index. Given the exceptional nature of the situation, there is a need to clarify how this weight update should be conducted in order to maintain comparability across countries. This clarification needs to be made while there is considerable uncertainty as regards the length and severity of the COVID-19 crisis in 2021. However, given the second wave of infections and partial lockdowns occurring this autumn in many European countries, it is likely that the crisis will affect the economy well into 2021.

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<sup>(1)</sup> See for example Cavallo, “[Inflation with covid consumption baskets](#)”, NBER working paper, 2020; INSEE, “[How to compute a Consumer Price Index in the context of the Covid-19 crisis ?](#)”, August 2020; UK-ONS, “[Re-weighted consumer prices basket – adjusting for consumption changes during lockdown](#)”, July 2020; ECB, “[Consumption patterns and inflation measurement issues during the COVID-19 pandemic](#)” November 2020.

This note provide guidance to the National Statistical Institutes to ensure a harmonised approach to the compilation of the weights to be used for the 2021 HICP. The guidance provided may also be applicable for future similar situations.

## 2. The conceptual and legal context

The HICP is an annually chain-linked Laspeyres-type index (cf. article 3(2) of [Regulation \(EU\) 2016/792](#)). This implies that the weights used in the index compilation are updated every year, in order to have the most representative weights to obtain the most accurate aggregate indices.

This is further elaborated in Regulation (EU) 2016/792 specifying the frequency and the deadline for submitting HICP weights:

*Article 6 (4):*

*Each year, Member States shall provide the Commission (Eurostat) with updated sub-index weights for the harmonised indices.*

*Article 7 (2):*

*Member States shall provide the Commission (Eurostat) with the updated weights by no later than 13 February each year for the monthly indices; ...*

The key requirements concerning the practical compilation of the weights can be found in the [Implementing Regulation \(EU\) 2020/1148](#):

*Article 3*

*1. Member States shall derive the sub-index and elementary aggregate weights used in the index for year  $t$  as follows:*

- (a) Until 31 December 2022, national accounts data for year  $t-2$  and any available and relevant information from household budget surveys and other data sources shall be used to obtain subclass expenditure shares and divide them among the elementary aggregates of the subclass. From 1 January 2023, national accounts data for year  $t-2$ , which can be complemented with data from a recent household budget survey and other sources, shall be used to obtain subclass expenditure shares and divide them among the elementary aggregates of the subclass;*
- (b) The expenditure shares for year  $t-2$  shall be reviewed and updated to make them representative of year  $t-1$ ;*
- (c) The expenditure shares for the elementary aggregates shall be adjusted with an appropriate price change between year  $t-1$  and December of year  $t-1$ .*

For the current situation, the key element of the legal framework is Article 3.1(b) of the Implementing Regulation (underlined). This article specifies that the expenditure shares used for the HICP in year  $t$  should be representative of year  $t-1$ . This is in line with the overall Laspeyres philosophy of the HICP. In practice, national accounts data of year  $t-2$  are used as basis to estimate the expenditure shares for  $t-1$ . In normal times, structural changes between  $t-2$  and  $t-1$  are limited so that  $t-2$  data can be used to estimate  $t-1$  (either by price-updating or not price-updating between  $t-2$  and  $t-1$ ). Clearly, this is not the case when consumption expenditure changes significantly, both in level and structure, between  $t-2$  and  $t-1$ , such as in the current COVID-19 pandemic.

The Box provides a concrete example of a product (package holidays) that is heavily affected by the pandemic and the need for updating its weight.

## Box: The case of package holidays

The weight used in the 2020 euro area HICP for COICOP 09.6.0.2 Package International Holidays is 1.347%. This is generally based on expenditure information from national accounts and other sources for 2018, which is reviewed and updated to make it representative for 2019 (and subsequently price-updated to December 2019).

The expenditure on international package holidays in 2020 has however dropped significantly due to the pandemic. The above-mentioned weight is clearly leading to a too high importance of package holidays in the 2020 HICP, a fact that has been noted in various places (see footnote 1). However, following the principle of an annually chain-linked Laspeyres-type index, within-year updates of the weights are not possible.

It is of course not foreseeable to what extent the market for package holidays will recover in 2021, but it is very likely that purchases of these services will not return yet to pre-pandemic levels. Hence, it needs to be ensured that the weight for package holidays to be used for the 2021 HICP is reduced compared to the weights used for the 2020 HICP. Otherwise, the aggregate HICP indices will have a bias.

Package holidays are also a very seasonal product, i.e. the prices of package holidays follow a typical seasonal pattern throughout the year. Reducing the weights in 2021 compared to 2020 will dampen the impact of any seasonality in the package holidays indices on the higher-level HICP indices in 2021 (including the all-items). Moreover, it is possible that the seasonal pattern of package holidays prices will change in 2021. Changes both in weights and seasonality may impact on the annual rate of change between month  $t$  in 2021 and the same month in 2020. This effect is similar to impacts on the annual rates of change because of changing seasonal patterns from one year to another. For example, there can be base effects when Easter falls in March of one year and in April in the next, or when sales periods differ from year to year.

## 3. Derivation of HICP weights for 2021

Following Article 3.1(a) of Regulation (EU) 2020/1148, the starting point for the 2021 HICP weights are national accounts data referring to 2019. Note that expenditure shares referring to 2019 will not include any COVID-19 related effects.

Article 3.1(b) then specifies that the weights for 2019 need to be reviewed and updated to make them representative for 2020. Typically, the first national accounts estimates of household consumption expenditure by COICOP for the year 2020 only become available in September 2021, which is too late as the HICP weights need to be submitted to Eurostat by 13 February 2021. Thus, preliminary national accounts data and other sources need to be employed.

It is important that countries use all available data sources to make the best possible estimates of the weights. It should also be noted that the uncertainty of the resulting estimates will naturally be higher than usual, as they are produced at an earlier stage of data availability. This fact needs to be communicated clearly to users. Note that revisions to the weights are not allowed by Implementing Regulation 2020/1148, Article 20.

As a minimum, the expenditures of the most heavily affected segments of consumption should be re-estimated. These are typically (but not exclusively) fuels, passenger transport (in particular by air), recreational and cultural services, package holidays, restaurants and hotels. This list may differ from country to country.

By the end of 2020, countries will have national accounts data for household consumption for the first 3 quarters of 2020<sup>2</sup>. This should provide a good basis for a first estimate of the overall level of total household consumption expenditure, which should provide the frame for the HICP weights estimates.

The following steps describe the broad approach to be undertaken to estimate the 2020 household consumption expenditures by ECOICOP:

1. Start from the most recent version of 2019 expenditures, as available from the national accounts, including the ECOICOP breakdown.
2. Make the best estimate possible for the total of 2020 Household Final Monetary Consumption Expenditure (HFMCE) on the basis of the available national accounts data (in current prices). The estimates based on national accounts data should be adjusted for the differences between HFMCE and the total household consumption at domestic concept in the national accounts, as described in Article 2(20) of Regulation 2016/792 and in the annex of Regulation 2020/1148.
3. As mentioned above, there will be national accounts data available for the level of consumption expenditure for at least the first three quarters of 2020. The fourth quarter should preferably also be estimated on the basis of preliminary national accounts data and short-term statistics or other sources (see annex for a list of possible indicators that should be available to most countries), as far as available. If no data for the fourth quarter are available, the level of consumption could be estimated by applying the change in consumption between Q1-Q3 of 2019 and Q1-Q3<sup>3</sup> of 2020 to Q4 of 2019 at the level of total consumption, or by summing up the results of applying this assumption at a more detailed level.
4. At the most detailed level possible, use available data (see annex) to estimate the expenditure for each ECOICOP sub-class in 2020. This can be done by either:
  - estimating the 2020 expenditure values directly (in which case 2019 data are not used);
  - multiplying the 2019 value by an indicator of the change in expenditure; or
  - by combining an indicator of the change in volume with an indicator of the change in price.
5. If the last quarter or months of 2020 are not yet available in the source data, the shares of consumption derived for the available quarters and months of 2020 can be used as approximation, or the same method is used as described in point 3 above.
6. If the most detailed level possible is different from the sub-class level, changes to the class or higher levels can be allocated proportionally to the lower levels using the HICP weights for 2020.

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<sup>(2)</sup> See dataset [Final consumption aggregates \[NAMQ\\_10\\_FCS\]](#) in the Eurostat database. These consumption data follow the domestic concept and include a breakdown by durability.

<sup>(3)</sup> Or Q2-Q3 of 2019 and 2020 if this is deemed to be more appropriate in the national circumstances.

7. If no data at all are available for certain segments outside the most heavily affected ones, assume no change in the share in HFMCE (i.e. multiply the 2020 HICP weight with the total HFMCE for 2020 obtained in step 2). Additionally, a price adjustment may be made using the change in HICP between 2019 and 2020.
8. Compare the sum of the 2020 expenditures of all sub-classes with the total of 2020 HFMCE obtained in step 2. If the difference is very large, the least reliable estimates (which could also be the total) should be reviewed and adjusted to make the difference smaller and thus the estimates more coherent.
9. Finally, when the difference in step 8 is sufficiently small (as a rule of thumb, a threshold of  $\pm 5\%$  may be taken), scale the expenditure of the sub-indices to the estimated total of HFMCE to eliminate any discrepancy between the total and the sub-components.
10. Calculate the 2020 expenditure shares for each sub-class by dividing the corresponding expenditure by the total HFMCE. The final estimate for the total of HFMCE should be used as country weight for the calculation of European aggregate HICP indices and need to be provided to Eurostat at the same time as the weights.

The above process will be similar to the typical national accounts process for estimating expenditures in a normal year. It is strongly recommended that price statisticians, national accountants and other statisticians (e.g. from household budget survey or short-term statistics) work together in obtaining the best possible HICP weights for 2021. At the end of 2021, the results of the above estimation procedure can be evaluated against more comprehensive national accounts data for the year 2020. Any lessons learned can be taken into account in future similar situations.

Since the HICP of year  $t$  is defined as a Laspeyres-type index where the weights refer to  $t-1$  and the price reference period corresponds to December  $t-1$ , the expenditure shares for 2020, obtained above for each sub-index, need to be multiplied by the difference between the corresponding HICP sub-index for the average of 2020 and December 2020, following normal procedure (cf. Article 3.1(c) of Regulation 2020/1148). Some of these sub-indices may partially have been imputed during 2020; they should nevertheless be used for the price-updating, to maintain consistency.

## 4. Transparency to users

There is a continued need to be fully transparent to users about the methods applied in producing the HICP weights. The special case of the estimation of the 2021 weights requires metadata that go beyond the generic description of the weights estimation in the reference metadata<sup>4</sup>. The National Statistical Institutions will be asked to provide a clear and comprehensive description of the estimation process, following a standard template, so that users can be fully informed.

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<sup>(4)</sup> [https://ec.europa.eu/eurostat/cache/metadata/en/prc\\_hicp\\_esms.htm](https://ec.europa.eu/eurostat/cache/metadata/en/prc_hicp_esms.htm)

## Annex: List of potential data sources

Below are examples of useful data sources that are available in Eurostat's dissemination database. Countries' NSIs may have more or more detailed data available at national level, e.g. from high-frequency household budget surveys or ad-hoc COVID-oriented surveys. NSIs may also have access to other data sources, for example from credit card data or scanner data. Many national central banks have set-up high-frequency COVID dashboards that could be consulted. In each case, the source needs to be evaluated as regards their suitability for measuring household monetary consumption expenditure by ECOICOP, according to the domestic concept.

- National accounts: [Final consumption aggregates \[NAMQ\\_10\\_FCS\]](#)
  - Quarterly, available at t+60 days
  - Domestic concept
  - Breakdown by durability:
    - durable goods
    - semi-durable goods
    - non-durable goods
    - services
  
- Short-term statistics: [Turnover and volume of sales in wholesale and retail trade - monthly data \[STS\\_TRTU\\_M\\_custom\\_35014\]](#)
  - Monthly, available at t+30 days
  - Turnover ≠ domestic expenditure; turnover also include non-household expenditures
  - Detailed breakdown by NACE, parts only for countries with a significant turnover:
    - Sale of motor vehicles; sale and repair of motorcycles
    - Sale of motor vehicles
    - Maintenance and repair of motor vehicles
    - Sale of motor vehicle parts and accessories
    - Sale, maintenance and repair of motorcycles and related parts and accessories
    - Retail trade, except of motor vehicles and motorcycles
    - Retail trade, except of motor vehicles, motorcycles and fuel
    - Retail sale of food, beverages and tobacco
    - Retail sale of non-food products (including fuel)
    - Retail sale of non-food products (except fuel)
    - Retail sale of textiles, clothing, footwear and leather goods in specialised stores
    - Dispensing chemist; retail sale of medical and orthopaedic goods, cosmetic and toilet articles in specialised stores
    - Retail sale of information and communication equipment; other household equipment (except textiles); cultural and recreation goods, etc. in specialised stores
    - Retail sale of computers, peripheral units and software; telecommunications equipment, etc. in specialised stores

- Retail sale of audio and video equipment; hardware, paints and glass; electrical household appliances, etc. in specialised stores
  - Retail sale in non-specialised stores
  - Retail sale in non-specialised stores with food, beverages or tobacco predominating
  - Other retail sale in non-specialised stores
  - Retail sale of food, beverages and tobacco in specialised stores
  - Retail sale of automotive fuel in specialised stores
  - Retail sale of information and communication equipment in specialised stores
  - Retail sale of other household equipment in specialised stores
  - Retail sale of cultural and recreation goods in specialised stores
  - Retail sale of other goods in specialised stores
  - Retail sale via stalls and markets
  - Retail trade not in stores, stalls or markets
  - Retail sale via mail order houses or via Internet
- Short-term statistics: [Turnover in services - quarterly data \[STS\\_SETU\\_Q\]](#)
  - Quarterly (some countries monthly), available at t+60 days
  - Turnover ≠ domestic expenditure; turnover also include non-household expenditures
  - Detailed breakdown by NACE, including e.g.:
    - Land transport and transport via pipelines
    - Water transport
    - Air transport; accommodation; travel agency, tour operator and other reservation service and related activities
    - Air transport
    - Postal and courier activities
    - Accommodation and food service activities
    - Accommodation
    - Food and beverage service activities
    - Information and communication
    - Telecommunications
    - Travel agency, tour operator and other reservation service and related activities
    - Cleaning activities
- Transport statistics:
  - [Passengers transported \(detailed reporting only\) - \(quarterly data\) \[RAIL\\_PA\\_QUARTAL\]](#)
  - [National air passenger transport by reporting country \[AVIA\\_PANC\\_\\_custom\\_35484\]](#)
  - Quarterly or monthly
  - Volume data: passengers or passenger-kilometres
- Tourism statistics:
  - [Nights spent at tourist accommodation establishments - monthly data \[TOUR\\_OCC\\_NIM\]](#)

- Energy statistics:
  - [Supply, transformation and consumption of gas - monthly data](#)  
[\[NRG\\_CB\\_GASM\]](#)
  - [Supply, transformation and consumption of electricity - monthly data](#)  
[\[NRG\\_CB\\_EM\]](#)