



EUROPEAN COMMISSION  
EUROSTAT

Directorate C: Macro-economic statistics  
Unit C-4: Price statistics. Purchasing Power Parities. Housing statistics

July 2024

# HICP Compliance Monitoring

## Report – Germany

### 1. Introduction

In October 2023, Eurostat reviewed the compilation of the harmonised index of consumer prices (HICP) for Germany. The review was done against the existing legal framework, established HICP recommendations and other guidelines and good practices in the field of consumer price indices.

The current report is based on:

- The 2023 inventory containing details of data sources, definitions and methods used in the HICP for Germany.
- The discussions at the compliance monitoring meeting with the Federal Statistical Office of Germany (DESTATIS), which was held virtually on **4 October 2023**.
- The information note on the previous compliance monitoring exercise published in [August 2018](#).

For all main methodological topics related to the HICP, this report briefly summarises DESTATIS compilation practices, followed by Eurostat's appraisal of compliance and, if applicable, recommendations for improvement. The report concludes with Eurostat's overall assessment of compliance of the HICP for Germany.

### 2. Release policy

The German HICP is disseminated using news releases and an online database.

The HICP is published each month according to a pre-announced schedule, usually between 15 and 18 days after the end of the reference month.

Currently, DESTATIS transmits the German all-items flash estimate HICP index to Eurostat with a flag that does not allow the index publication, even though the flash estimate rates of change

are published. Following the discussions during the compliance monitoring exercise, DESTATIS agreed that Eurostat publishes also the all-items flash estimate HICP index in the future.

### 3. Coverage and classification

The target universe of the German HICP follows the household final monetary consumption expenditure (HFMCE) concept as it is defined in Article 2(20) of Regulation (EU) 2016/792 (Framework Regulation) and in the Annex of Regulation (EU) 2020/1148 (Implementing Regulation).

In line with this concept, the HICP reflects consumption expenditure by all individuals and households <sup>(1)</sup>. These definitions follow the concepts of the European System of Accounts ([ESA 2010](#)).

The HICP comprises all purchases within the economic territory of the country by resident and non-resident households (i.e., domestic concept). Only monetary expenditures are included in the HICP.

The product categories listed in Article 5(8) of the Framework Regulation 2016/792 as well as owner-occupied housing expenditures are excluded from coverage in the German HICP.

The HICP includes the entire area of Germany, covering 94 regions in all 16 States of the country.

DESTATIS classifies products and calculates the HICP according to the European Classification of Individual Consumption according to Purpose (ECOICOP) since January 2016.

DESTATIS includes in the HICP all ECOICOP categories whose expenditure share lies above the threshold of one part per thousand defined in Article 5(7) of the Framework Regulation. DESTATIS also produces sub-indices for many categories with an expenditure share below this threshold.

### Compliance

The coverage and classification in the German HICP are in line with the legal requirements.

### 4. Weights

A three-year average of national accounts (NA) data (2019, 2020, and 2021) was used to obtain subclass expenditure shares when rebasing the national consumer price index to 2020. For the HICP, these expenditure shares are updated each year with the annual rates of change of the NA

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<sup>(1)</sup> The expenditures of individuals living in institutional households are not reflected in the coverage of the German HICP.

data. The use of the three-year average is not in line with the current implementing regulation. The subclass expenditure shares should be derived each year from NA data of a single year (t-2).

The disaggregation to the national classification (10-digit level) relies mainly on data from the Household Budget Survey (HBS). The most recent HBS data was collected in 2018. The next update is planned for 2023. Other sources are also considered such as economic accounts, retail trade, etc.

The weights are price-updated to December of the previous year (price reference period).

The regional weights are also obtained from NA data and are updated every 5 years. The next update is planned for 2024.

## **Compliance**

The compilation of weights in the German HICP is not in line with Article 3(1) of the Implementing Regulation 2020/1148.

## **Requirement**

- DESTATIS should use NA data from a single year (t-2) to compile the weights at ECOICOP 5-digits level.

## **5. Sampling and representativity**

In the German HICP, sampling is done with respect to regions, outlets, and products (goods and services).

Representative cities and outlets are selected for price collection by purposive sampling within 94 German regions covering the entire area of Germany.

Except for e-commerce, outlets are selected by the regional statistical offices according to their relevance for private consumption, measured by the number of purchases. If necessary, new or replacement outlets are included in the sample at any time, while changes in the relevance of outlet types are considered every 5 years. Currently, there are 8 outlet types (e.g., department stores, e-commerce) with an explicit product-specific weight.

The product sample consists at the highest level of around 750 product categories (broken down to the 10-digit COICOP level) with an explicit weight. For each product category, the most frequently sold individual products are selected using purposive sampling (except for rents). The individual products selected for price collection are continuously updated, while the product categories are reviewed every 5 years. Newly significant products can be included according to the product descriptions of the categories at any time. Consequently, newly significant products that do not fall under any product description may only be included during the next 5 years revision.

## Compliance

The sampling in the German HICP is not fully in line with the legal requirements. The review of the sample of products at the level of product categories happens only every 5 years, which contradicts with Article 4(3) of Implementing Regulation 2020/1148, which requires ‘at least an annual review and update of the target sample’.

## Requirement

- DESTATIS should review the sample of products annually to ensure that market changes are properly captured in the HICP.

## Recommendation

- DESTATIS should review the outlet sample annually to ensure that all types of outlets are correctly represented in the HICP.

## 6. Price collection

### Scanner data

DESTATIS have scanner data from 17 retailers and plans to fully replace traditional price collection from 2028 (the next planned CPI weights update) with scanner data using a multilateral GEKS-Törnqvist index with the 25 HASP methodology for COICOP divisions 01 (Food and non-alcoholic beverages), 02 (Alcoholic beverages and tobacco) and drugstore products.

Usually, the introduction of scanner data is done using a stepwise approach to mitigate the risks and impacts of substantial changes in the methodology and in the production system. It is recommended to begin the introduction of scanner data sooner, starting with a limited number of shops and COICOP groups and expanding it over the years.

### Data validation

Data validation is performed during data collection as well as during each processing step in the production system.

Price entries by the price collectors, indices and weights undergo both automatic and manual plausibility checks. To detect outliers, prices that are at least twice as high or at most half as high as the last observed price are listed for each product and checked by desk officers at the regional statistical offices. For online prices, different thresholds are applied.

The plausibility of the overall HICP as well as the sub-indices is assessed by a comparison of all 16 regional indices. Item weights are compared each year to previous period weights and larger deviations are checked.

Due to the organisation of consumer price statistics in Germany, only regional offices have access to the price data that they collect. Therefore, the production system currently does not provide additional data quality indicators like the number/share of newly introduced products, replacements, quality-adjusted prices, and imputed prices in each month. An additional breakdown of these data quality indicators by State and/or outlet type seems helpful for detecting inconsistencies.

## Compliance

The treatment of prices in the German HICP is in line with the legal requirements.

## Recommendations

- DESTATIS should assess if the stepwise implementation of scanner data may give better results for users than the full replacement of the traditional data source in 2028.
- DESTATIS should set the range used for outlier detection/extreme price changes with respect to the underlying product and/or outlet type.
- DESTATIS should improve the automatization of data validation.
- DESTATIS should include additional data quality indicators in the production system.

## 7. Replacement and quality adjustment

### Treatment of missing prices

For non-seasonal products, prices for missing products are estimated using the price development of the corresponding 10-digit COICOP product category for two months at maximum. If the last surveyed price of the missing individual product was a special offer price, this price is first raised to a theoretical price excluding special offers (i.e., 'normal price').

### Replacements

If the price of an individual product is missing after more than two consecutive months, it is considered as being permanently unavailable and, thus, replaced by a successor during the month under review. A replacement is proposed by the price collector and checked by the responsible regional statistical office. There are rare exceptions where the proposed replacement product is rejected, and then the replacement is postponed to the next month and the missing price is estimated.

### Quality adjustments

In the German HICP, the following quality adjustment methods are used:

- Direct price comparison: only for replacements by a comparable product; used for clothing and footwear and dwellings.
- Overlap: used for flights, package holidays, telecom services.

- Bridged overlap: replacements within the same elementary aggregate, but different consumption segment; used for flights, package holidays, telecom services.
- Package size adjustment for food and ‘other consumer goods’.
- Option pricing: 50% of the price change is considered as the monetary value of the quality change when not clear if consumer would have paid for the new option; used for new cars.
- Supported judgemental quality adjustment: rents, flights, package holidays, telecom services.
- Hedonics: desktop PCs, printers, hard drives, notebooks, used cars, value-adding investments for dwellings.

Quality-adjusted prices are flagged in the database. However, the quality adjustment method is not recorded. Therefore, DESTATIS cannot provide any numbers on the (relative) usage of each method. Currently, there is also no assessment of the impact of quality adjustments on the subindices and the total index.

## Discounts

Discounted prices are included in the index when they can be attributed to an individual product. Discounts available to a restricted group of consumers are usually not considered due to a lack of data quantifying the number of consumers making use of the discount. This approach is in line with Article 6(1) of Implementing Regulation 2020/1148.

## Compliance

The treatment of missing prices, replacements, quality adjustments, and discounts in the German HICP is in line with the legal requirements.

## Recommendations

- DESTATIS should record the quality adjustment method used for each quality adjustment made.
- DESTATIS should implement an impact assessment of the quality adjustment on the index.

## 8. Treatment of seasonal products

DESTATIS uses the seasonal imputation method. The prices of seasonal items that are missing because they are out of season are imputed by the price change of available seasonal items (‘counter-seasonal estimation’), while an all-seasonal estimation is used if no seasonal items are available.

## Compliance

The treatment of seasonal products in the German HICP is in line with the legal requirements.

## 9. Index calculation

The index calculation is carried out in multiple aggregation steps. First, elementary price indices are computed for each product category at the 10-digit COICOP level, outlet type, and State using the Dutot index, where current period prices are averaged and compared to the average price in December of the previous year (the price reference period). The elementary price indices are then aggregated over outlet types using the Laspeyres-type formula and the product-specific outlet type weights. For each product, the resulting State price indices are aggregated into national ones using the corresponding State weights. Using the product expenditure shares (or HICP item weights), these product price indices are aggregated stepwise into higher-level indices according to ECOICOP, finally resulting in the all-items HICP.

All sub-indices and the all-items index are chain-linked via December of the previous year and expressed in the index reference period 2015=100, except for sub-indices that are integrated after the index reference period. The calculation of indices relies on unrounded numbers. Indices are published with one decimal. Annual, monthly, and average annual change rates are derived from the published (rounded) indices.

DESTATIS uses the Dutot index to compute elementary price indices. The Dutot index assigns a higher weight to price changes of more expensive products, which may introduce a bias in the index.

## Compliance

The index calculation in the German HICP is in line with the legal requirements.

## Recommendation

- DESTATIS should use the Jevons index instead of the Dutot index to compile elementary price indices.

## 10. HICP at constant tax rates and administered prices

DESTATIS transmits the HICP at constant tax rates (HICP-CT) following the methodology defined by Eurostat. Tax changes in the HICP are generally included from the month when the tax comes into effect. New tax rate changes introduced later than the first day of a given month are reflected in the HICP-CT of the following month. In case of a tax change on products like

cigarettes, that are sold with both the old and new tax tariff simultaneously, the new tax tariff is implemented in the calculation of the HICP-CT at the time of its introduction.

The classification of administered prices (HICP-AP) is reviewed and updated annually. The list for the compilation of the HICP-AP is delivered to Eurostat in line with the established transmission practice.

## **Compliance**

DESTATIS regularly compiles and transmits the HICP-CT and provides information on administered prices in line with the legal requirements.

# **11. Special products**

## **Rents**

Rental prices are surveyed for existing and new contracts of dwellings (apartments and single-family houses), respectively. Secondary residences are included. The sample of dwellings is drawn from the German census of building and houses of 2011. The rental prices are observed every month using a rolling sample approach, where one-third of the overall sample is used in each month because in Germany there is a three-month notice period for price increases. The rental sample is stratified according to types of regions, types of landlords, and rental units that are defined by age, size, and financing. At the lowest level, rental prices are aggregated for each stratum using the Dutot index. The resulting indices are then aggregated using explicit weights for the types of landlords, the types of rental unit, and the States.

Quality adjustments by expert judgement and hedonics are done for modernisations in the dwelling with a value-adding character and replacements. Replacement dwellings are drawn from a reserve sample and should belong, if possible, to the same stratum of the dwelling that needs to be replaced. If the replacement dwelling differs in its characteristics, the rental price is quality adjusted. Otherwise, a direct price comparison is used.

## **New and second-hand cars**

Prices for new cars are collected at the manufacturers, since these are the same as at the car dealers. Transaction data are used for second-hand cars. These data are aggregated and represent a sample. Obtaining transaction data for new cars is not foreseen for the near future.

Data from the register are used for the sampling and weighting of the cars category. The sample and lower-level weights are updated every five years. The sample should be updated every year.

Electric cars are included in the sample.

Replacements for new cars are made using explicit quality adjustments. A hedonic model is used for the replacement of second-hand cars.



## **Flights and package holidays**

Based on data representative for the period 2015 to 2019, expenditures on flights by foreigners in Germany are included in the derivation of weights, while expenditures for business flights are excluded. Flights with a stopover are also considered in the sample, where the flights with the highest passenger numbers per continent are selected. Resampling is done every five years instead of annually. Replacement flights are quality-adjusted using bridged overlap or expert judgement. Prices for flights are collected daily by DESTATIS using an API provided by the AMADEUS travel company. The prices are offer prices and recorded 180, 90, 60, 30, and 15 days before departure of the flight. Since 2023, the cheapest price available for each flight ('best price approach') is used for index calculation in the German HICP.

Transaction data for package holidays are integrated in the German HICP since 2023, while the price index for cruises still relies on offer prices. The transaction data are provided by the AMADEUS travel company on a weekly basis. Currently, 20 travel destinations with a relevant market share are considered in the index calculations. The price indices for package holidays are calculated using the double imputation hedonic method to account for quality differences. Following Article 8(2) of Implementing Regulation 2020/1148, prices enter the index calculation in the month in which consumption of the service commences.

## **Energy products**

Prices for electricity and gas are collected by the regional statistical offices for three types of tariffs: general tariffs from the local provider, tariffs from the local provider apart from the general tariff, and tariffs from any other provider. Stratification is done by region and consumption profile (defined by fixed average monthly consumption). Explicit weights are assigned to the States, the three types of tariffs, and the four consumption profiles in the price index calculation. Newly signed and existing contracts, contracts of different durations, and renewable energy tariffs are included in the calculation without explicit weights. For each consumption profile, the annual tariff is computed based on the tariff's quantity-dependent and quantity-independent price components.

Fuel prices are collected manually (by telephone or by visiting the petrol station) by the regional statistical offices. However, a more automated price collection for fuel prices from the German market transparency unit could easily reduce the efforts of manual price collection and it would allow access to all daily fuel prices in Germany.

## **Mobile phones and laptop computers**

Data for mobile phones are purchased monthly from a market researcher on the best sold 100 models. Further characteristics are collected with an online survey. A median is used to aggregate the prices of the same model over the different outlets. The price determining characteristics are in line with the work developed by the Task Force Quality Improvements subgroup on mobile phones product descriptions.

Price trends for laptops have been increasing in recent years after many years of decreases. This is confirmed by using the price development of hardware components as a benchmark. The upward trend is also due to certain users (e.g., gamers) requiring higher hardware capabilities. Market intelligence is used extensively to analyse these prices, derive the sample, and obtain product characteristics.

Hedonic methods are used, and the hedonic model is updated every year.

## **Telecom services**

The German Telecom index covers wired and wireless telephone services, pure internet services, and bundled telecom services. A pre-defined consumer profiles approach is used for index compilation.

Migration rates for telecom services are not used. DESTATIS should gather information from the telecommunications companies and the tariffs they offer.

## **Digitalisation**

E-commerce had a share of 16.8% within the eight outlet types in 2020 according to market research data. In line with the recommendations on the treatment of cross-border internet purchases, endorsed by the Directors of Macro-Economic Statistics in December 2016, online outlets that deliver to Germany are covered.

Streaming services such as Netflix, Spotify and Amazon prime are included.

## **Compliance**

The coverage of the special products is in line with the legal requirements, with the exception of the frequency of the sample update as mentioned in section 5.

## **Recommendations**

- DESTATIS should update the sample of rents with the 2022 German census on buildings and houses.
- DESTATIS should investigate a more automated price collection for fuel prices from the German market transparency unit.
- DESTATIS should investigate the use of transaction data for cruises.
- DESTATIS should update the sample for flights annually.
- DESTATIS should investigate the possibility to obtain more up-to-date data on flights (than from the period 2015-2019) for sampling and the derivation of weights.
- DESTATIS should use migration rates to derive the monthly share of different tariffs for telecom services.

## 12. Follow-up from the previous compliance report

The main findings from the previous compliance monitoring exercise were published in [June 2010](#), and a follow-up was conducted in [August 2018](#).

DESTATIS has since ensured the monthly collection of prices for garden maintenance and household services but further work on updating the sample of outlets annually is still required. Monthly price collection is not yet ensured for maintenance and repair of the dwelling.

## 13. Overall Assessment

Based on the information listed in section 1 and obtained during the compliance monitoring visit, Eurostat assesses that the German HICP is in line with most legal requirements. DESTATIS should improve compliance by implementing the requirements formulated in sections 4 and 5. Notwithstanding these issues, Eurostat assesses the HICP for Germany to be comparable to that of the other EU Member States. Eurostat supports the extensive use of hedonic methods since those facilitate the compilation of a constant quality (i.e., pure price change) index. If DESTATIS follows up on the recommendations given, the comparability of the German HICP will improve further.