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

HICP Compliance Monitoring Report

The Netherlands

December 2021

1. Introduction

In July 2021 Eurostat reviewed the compilation of the harmonised index of consumer prices (HICP) for the Netherlands. 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 (CPI).

The current report is based on:

- The 2021 inventory containing details of data sources, definitions and methods used in the HICP for the Netherlands.
- The discussion at the compliance monitoring meeting with Centraal Bureau voor de Statistiek (CBS), which was held via videoconference on 6 July 2021.
- The information note on the previous compliance monitoring exercise published in September 2012.

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

2. Coverage and classification

The target universe of the Dutch 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 by households, including the consumption incurred by institutional households. The domestic principle is applied by covering expenditures made by both resident and non-resident households on the economic territory of the Netherlands, while excluding expenditures made by resident households abroad. Only monetary expenditures are included.

The product categories listed in Article 5(8) of the framework regulation as well as owner-occupied housing expenditures ([1]) are excluded from the coverage of the Dutch HICP.

In line with point 3 of the Annex of the implementing regulation, dwelling allowances, which are part of European System of Accounts (ESA 2010) aggregate D.632, are included in the Dutch HICP.

CBS classifies products and calculates the HICP according to the European Classification of Individual Consumption according to Purpose (ECOICOP), which was implemented in January 2016. At that moment, back series starting in December 2009 have been published according to this classification.

([1]) Owner-occupied housing is included in the national CPI through the rental equivalence approach. As opposed to the HICP, the national CPI also includes additional categories for consumption related taxes, and for consumption abroad.

An ECOICOP category is included in the Dutch HICP if its expenditure share lies above the one part per thousand threshold defined in Article 5(7) of the framework regulation. CBS usually continues to produce sub-indices for categories that were included in the HICP in past years, although their expenditure share has fallen below this threshold.

In 2021, the HICP weight for hospital services is zero (ECOICOP 06.3), although some final consumption expenditure for these services is measured by the national accounts. The weight for repair and maintenance services (ECOICOP 04.3.2) is close to zero (0.37 parts per thousands in the Netherlands, against 8.84 parts per thousand in the euro area). In the Netherlands, most home maintenance is considered in the national accounts as gross fixed capital formation or as intermediate consumption and is therefore not included in final consumption expenditure.

Compliance

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

Recommendation

CBS should review the estimation of expenditures for hospital services (ECOICOP 06.3) and for repair and maintenance services (ECOICOP 04.3.2).

3. Weights

The weights in the Dutch HICP are updated annually. The main source for the weights are preliminary data on household consumption expenditure for the year t-2 provided by the national accounts. The national accounts data are available at a very detailed level so that they can be mapped to the 5-digit ECOICOP classification used in the HICP. If there are significant changes in the expenditures between the years t-2 and t-1, CBS may further adjust the amounts provided by the national accounts. The other adjustment that CBS performs to the national accounts data is to redistribute to the level above the weight of sub-classes that are excluded because of a too low expenditure.

Below the 5-digit ECOIOP level, weights are used for outlets/data provider, outlet types, and articles. These weights are calculated by CBS using for example turnover data from scanner data, market research, and business statistics.

The weights for 2021 were compiled in line with Eurostat's guidance on the compilation of weights in case of large changes in consumption expenditures (²). CBS used national accounts data for 2019. The expenditures for all categories were adjusted with an average growth rate of consumer spending for the first three quarters of 2020 compared to 2019 using indicators which were already available at the time of the weight calculation. The change in consumption patterns in 2020 resulted in a decrease in the weight of flights, package holidays and restaurants and hotels, and an increase in the weight of food.

Price-updating takes place at the 5-digit ECOICOP level by outlet type. Expenditure shares are price-updated from the average of year t-1 to December of the year t-1. CBS does not price-update between the years t-2 and t-1.

(²)   Available in the HICP dedicated section on Eurostat's website.

Compliance

The compilation of weights in the Dutch HICP is in line with the legal requirements.

4. Sampling and representativity

In order to ensure outlet representativity, an ECOICOP 5-digit sub-class is typically broken down by outlet type, and by data provider.

Outlet-types, e.g. supermarkets, department stores, etc., are defined so that they can be linked to the categories of the Dutch version of the NACE rev2 classification. There is no regional stratification and outlets are sampled from the entire country for each outlet type. The outlets are selected at the central level using information from the Household Budget Survey, market research companies, the business register, and other data sources.

For scanner data, but also for web scraped data, the outlet type is further broken down by data provider. Each data provider corresponds to a separate stratum to which a fixed weight is assigned. Although there are only around 55 such data providers in 2021, a good outlet coverage is nevertheless obtained because data providers with large market shares are selected and the prices used for a specific data provider usually cover all outlets of that data provider.

For retailers that have both physical and web shops, the prices collected on the internet represent not only e-commerce transactions but are also used as proxy prices for offline transactions. In addition to national websites, foreign websites are also included in the sample if they are important on the Dutch market.

Relatively tight product specifications are developed at the central level in order to select the individual products for which a price is obtained in the sampled outlets. The product specifications are based on market information with a focus on selecting the major brands and models.

For scanner data and web scraped data, a much wider product coverage is achieved. The index is stratified according to 'ISBA categories'. These are internally defined product categories that are aligned on classifications from the data providers. All the individual products that belong to an ISBA category are then used in the index compilations.

Commodity experts design and maintain the outlet and product samples. There is a regular review of the samples with a focus on categories that are known to be more dynamic.

The rental market is divided into two categories: social rental home and private rental home. For the first category, data is directly obtained from the housing corporations. In order to cover the second category, a stratified sample is drawn consisting of around 15 000 dwellings.

Compliance

The sampling and representativity in the Dutch HICP are in line with the legal requirements.

5. Price collection

CBS relies on different data sources and collection modes to obtain the prices that are needed to calculate the Dutch HICP. A large part of the basket is calculated with prices from new data sources. Scanner data represents around 39% (in terms of expenditure weight) of the basket, and 9% of the basket is covered through web scraping. Other types of central price collection are

carried out for 36% of the basket. This includes the use of administrative data as well as individual prices from the internet that are looked up one-by-one. For 6% of the basket, computer assisted web interviews (CAWI) are conducted, which means that respondents directly provide the requested prices in online forms. Finally, the rent survey makes up around 10% of the basket. Since 2020, CBS has stopped field price collection and obtains all prices via other means.

Prices are usually collected during the three first weeks of the month. For scanner data, an average price of all transactions in the two or three first weeks of the month is used in the calculations. For some products, such as fuels, transaction data from the entire month are used. Web scraped prices are obtained on a daily basis covering also the first full three weeks of the month.

Prices for several items in the ECOICOP are not subject to monthly data collection. CBS collects prices for heat energy only in January, as the price of heat energy is regulated by the Dutch consumer authority and only changes in the month of January. Prices for different types of insurance are collected on a quarterly basis, although prices for car insurance are collected monthly.

CBS increased the price collection for camper vans, caravans and trailers (ECOICOP 09211) from once a year in the period 2016-2019 to twice per year, in March and September.

CBS regularly reviews the frequency of price collection and evaluates if it is necessary to include more periods in the sample. There are no immediate plans to increase the frequency of price collection for any of the mentioned items.

The national rents survey is carried out in the period June-July of each year. Rents are collected only once per year because in the Netherlands, rents are typically adjusted on the 1st of July. However, a change in the rent of a dwelling during the year because of a change in the tenant, would only be captured the following July. The survey collects information such as changes in contracts, rent amounts before and after the change in contract, and rent changes due to renovations. The data from the rents survey are not completely validated and thus not available in time for the publication of the July HICP data in August, occasionally necessitating the subsequent revision of the July data.

For flights and package holidays, the prices enter the HICP in the month during which the travel takes place. The price index for package holidays is based on an average transaction price for a homogenous product in the reference month. Prices for flights are collected from the internet one month and two months in advance.

The prices used in health services correspond to the prices actually paid by the households. In practice, this corresponds to the amount not covered by the basic health insurance scheme that was put in place in the Netherlands. Health services not covered by the public insurance scheme are included in the HICP at the full price.

The same principle also applies for social protection services. The prices that enter the calculations only cover the own contributions that households have to pay to the institutions that provide these services. For child care services and retirement homes, the own contribution may depend on income. For these services, consumer profiles are defined using income and other socio-economic characteristics. The weight structure for these profiles is updated once per year and the average prices derived from the two weighting structures are directly compared. As a consequence, changes in income are captured as changes in the corresponding price index.

For second-hand motor cars, the price index calculated by an external provider lags by one month due to the organisation of data collection of the company that compiles the index. CBS is currently in talks with the company to avoid the lag, and it will investigate the potential methodological implications of such a change. For new motor cars, CBS is using list prices.

Price reductions are always taken into consideration if they are available to all consumers without conditions. In the case of transaction (scanner) data, actual average transaction prices are measured.

Compliance
The timeliness of the second-hand motor car price index is not fully in line with the legal requirements. According to Article 8(1) of the implementing regulation, the prices should be included in the HICP for the month in which transactions at that price can take place.

Requirement
CBS should improve the timeliness for the second-hand motor car price index (ECOICOP 07112).

Recommendations
- CBS should investigate if data collection frequency for rents (ECOICOP 0411) can be improved while taking into account cost and burden on respondents.
- For camper vans, caravans and trailers (ECOICOP 09211), CBS should consider a more frequent price collection.

6. Replacement and quality adjustment

Product replacement decisions and quality adjustments are handled at the central level.

In the case of manual price collection (e.g. individual prices taken from the internet), prices are collected from different outlets for a tightly specified product. An individual price that cannot be collected in a specific outlet is imputed. The imputation is based on the price change of the matched product-offers for this product specification. This type of imputation is carried out for a maximum of six months, after which the outlet is removed from the sample for that product. Another product-offer is priced in another outlet and brought into the calculations through linking. A downward bias appears in the index if an outlet is included with clearance or other reduced prices and then replaced in the sample through the use of an overlap linking procedure. When replacing a closed-down outlet following a period of clearance sales, preference should be given to a method that does not lead to downward bias, such as direct comparison.

If product-offers falling within the product specifications cease to be available in most outlets, or if the product specification is not representative anymore, the commodity analyst at CBS selects another product specification in the same market segment and price collection is initiated for this new product specification. A quality adjustment is made in order to account for the quality difference (if any) between the old and the new product specification. The main quality adjustment methods used at CBS are direct comparison, quantity adjustments, option pricing (for example for cars), or expert judgment (for example for electronic goods). Hedonic methods are currently not applied.

In the case of scanner data, the individual product is defined as a specific Global Trade Item Number (GTIN), or as a group of GTINs (homogenous product) among which there are no significant quality differences. With the fixed basket calculation method, the procedures in place for manual price collection are also applicable to scanner data. This means that if an individual product is missing, a replacement product is selected, taking into account the turnover of potential replacement products, and a quality adjustment is made if needed. With the multilateral method, there are no one-to-one replacements, but the calculations are based on all the data in each period. For supermarket scanner data, the methods implicitly take into account the effect of new and disappearing individual products (GTINs). Currently, the system does not link different GTINs in order to explicitly capture price changes related for example to package size changes. For other products, such as mobile phones, quality changes are handled through the specification of the homogeneous products. No other explicit quality adjustments are made and the multilateral method is applied to these homogenous products.

Clothing and footwear products are mainly observed through web scraping. Product categories are defined for different types of clothing and footwear. An average price is calculated over all the scraped price quotes of items that are part of that category. The set of items that are part of a product category can change in each month. CBS monitors the homogeneity of the product categories by checking the distribution of prices within each category.

For rents, a quality adjustment is performed if a change in the rent is linked to some renovations that have been carried out in the dwelling.

Compliance

The application of quality adjustment methods in the Dutch HICP are in line with the legal requirements.

Recommendations

- To avoid a downward bias, CBS should improve the treatment of outlet replacements in connection with reduced (clearance) prices observed in the outlets that are removed.
- For supermarket scanner data, CBS should examine the treatment of changes in item codes that are linked to changes in package size and ensure that price changes due to package size changes are properly captured.
- In order to continuously apply the best possible, most efficient and effective quality adjustment method, CBS should carry out research on explicit quality adjustment methods and on its application in relevant product categories.

7. Treatment of seasonal products

The treatment of seasonal products in the Dutch HICP depends on the type of product and on the data source. Food products such as fruits or vegetables are included in the scanner data sets. The calculation procedure applied in general to scanner data, multilateral method with a fixed base expanding window (FBEW), is also applied to these seasonal products. Seasonal products are not explicitly identified. When a specific item code is out-of-season, its weight is zero, and when it is in-season, its weight corresponds to the actually observed quantities. In the context of seasonal products, the FBEW approach could have some drawbacks. Price changes between one season

and the next season in the following year may not be fully captured and the long term trend may overly depend on those seasonal products that are available in the base period.

For clothing and footwear, the product categories are specified in relatively broad terms. Moreover, some parts of the different winter and summer collections are often available all year around. As a consequence, an average price can usually be calculated for each product category in in each month and fixed weights are assigned to these categories.

For package holidays, the product (destination and type of travel) can be in or out-of-season. If a product is out-of-season, its index is estimated by carrying forward the index for the previous month. This method for package holidays was put in place in 2012. CBS is currently investigating the wider use of transaction data for package holidays in combination with a change of methodology in order to align with the updated legal requirements regarding the treatment of seasonal products. Due to the expected impact of such a method change on the HICP, CBS should inform Eurostat about the implementation of the method change no later than three months in advance and provide a quantification of the impacts in line with Article 9(3) of the framework regulation.

Compliance

The treatment of seasonal products is not fully in line with the current legal requirements. For package holidays, where winter and summer in- and out-of-season periods exist, the index is not compiled using the seasonal imputation or seasonal weights methods, as required by Article 14 of the implementing regulation.

Requirement

The CBS should treat package holidays using a seasonal method consistent with the legal framework.

Recommendation

CBS should investigate the treatment of seasonal products with multilateral methods in particular in relation to window length and splicing method.

8. Index calculation

The Dutch HICP is structured according to ECOICOP. A 5-digit sub-class is further stratified by outlet type. The standard calculation procedure applies to data different from scanner data and bulk web scraped data. For a given outlet type, representative products (articles) are selected. A ratio of the arithmetic average of prices (Dutot index) is calculated for each such article based on the prices collected from the different outlets. The price levels that enter the Dutot index are usually relatively similar as representative products are specified in a tight manner.

A different calculation procedure applies to scanner data. A given outlet type is further broken down by retailer or data provider, and by product category. At this level, an elementary index is obtained by combining the prices of the individual products (GTINs or homogeneous products). CBS applies a multilateral method to most of the scanner data. The Geary-Khamis/QU-method is calculated over a FBEW. Each month, the time window is extended by one month, starting in December, which acts as the base period. For some products (for example some consumer

electronics, some products sold in garden centres), a Dutot index (fixed basket method) is used instead of a multilateral method.

The index for package holidays is calculated for elementary aggregates defined by destination and by type of travel (for example Spain by plane) and by travel company. Transaction data is used to select the most sold package holidays (homogeneous products) and ratio of geometric average of prices (Jevons) indices are calculated. The use of the Jevons index instead of the Dutot index is motivated by the fact that price levels for package holidays within an elementary aggregate are less homogeneous.

For web scraped data, an arithmetic average (unit value) is calculated from the scraped price quotes at the level of a product category and website.

The December month of the previous year is used as price reference period for all elementary indices. From the elementary aggregate level upwards, a Laspeyres-type index is applied. The obtained indices are chain-linked via December and are expressed in the index reference period 100=2015.

Compliance

The index calculation of the HICP for the Netherlands is in line with the legal requirements.

Recommendation

CBS should assess the use of the Dutot index in order to always select the most appropriate method to compile elementary price indices.

9. HICP at constant tax rates and administered prices

CBS annually reviews and updates the list of ECOICOP sub-classes that are considered to be mainly or partly administered.

The Dutch HICP-CT covers value-added type taxes, excise duties and consumption taxes, and car registration taxes. The HICP-CT is calculated by replacing the observed price with a price based on the tax rates of the previous December. With multilateral methods, prices are adjusted in the same way, and the quantities are left unchanged. The tax rate changes are taken into account in the month in which they enter into force. For cigarettes, tax rate changes are introduced with some lag. They are taken into account when the turnover of cigarettes sold with the new tax rate becomes significant.

Compliance

The calculation of the HICP-CT for the Netherlands is in line with the legal requirements.

10. Follow-up from the previous compliance report

The main findings from the previous compliance monitoring exercise were published in September 2012. In line with the recommendations made in that information note, heat energy is included in the HICP since 2015. The price indices for food products are now covered through scanner data for which classification rules are implemented based on the retailer classifications. However, the price index for new motor cars continues to be based on list prices. According to CBS, list prices for cars in the Netherlands are considered to be a good proxy for prices actually paid.

11. Overall assessment

On the basis of the information listed in section 1, Eurostat assesses that the HICP for the Netherlands is in line with most legal requirements. CBS should improve the compliance by implementing the requirements formulated in sections 5 and 7. Notwithstanding this issue, Eurostat assesses the HICP for the Netherlands to be comparable to that of the other EU Member States. Furthermore, if CBS follows up on the recommendations given in sections 2, 5, 6, 7 and 8, the comparability of the Dutch HICP will improve further.