



EUROPEAN COMMISSION
EUROSTAT

**QUALITY REPORT ON
THE
HOUSE PRICE INDEX**

**in the context of the Macroeconomic
Imbalances Procedure**

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QUALITY REPORT ON THE HOUSE PRICE INDEX

In the context of the macroeconomic imbalances procedure

1. INTRODUCTION

The compilation and dissemination of the house price index (HPI) is provided for in Regulation (EU) 2016/792 on harmonised indices of consumer prices and the house price index ⁽¹⁾ and in Commission Implementing Regulation (EU) 2020/1148 of 31 July 2020 ⁽²⁾. The real HPI (HPI deflated with the deflator of private consumption) is one of the headline indicators in the Macroeconomic Imbalance Procedure (MIP) scoreboard.

The present report is an updated quality report on the HPI intended for public dissemination. It was drafted taking into account the needs of quality monitoring for the statistics underlying the MIP indicators. In the context of the MIP quality framework, it is referred to as the 'Level 2 report'.

The quality concept applied in this report is consistent with the definition developed by the European Statistical System and with the notions used in the context of the MIP quality framework. In this report, quality consists of the following components: professional independence; mandate for data collection; impartiality and objectivity; sound methodology, appropriate statistical procedures, accuracy and reliability; relevance; timeliness and punctuality; coherence and comparability; accessibility and clarity.

This quality report has been produced on the basis of national quality reports completed by Member States in the context of the MIP quality framework ⁽³⁾, complemented with information available in the metadata published by Eurostat. Eurostat wishes to thank the experts in Member States who contributed to this quality exercise by filling in the national quality reports.

⁽¹⁾ [Regulation \(EU\) 2016/792](#) of the European Parliament and of the Council of 11 May 2016 on harmonised indices of consumer prices and the house price index, and repealing Council Regulation (EC) No 2494/95, OJ L 135, 24.5.2016, p. 11-38.

⁽²⁾ [Commission Implementing Regulation \(EU\) 2020/1148](#) of 31 July 2020 laying down the methodological and technical specifications in accordance with Regulation (EU) 2016/792 of the European Parliament and of the Council as regards harmonised indices for consumer prices and the house price index; OJ L 252, 4.8.2020, p. 12-23.

⁽³⁾ They are called 'Level 3 *National self-assessment reports on the quality of Housing Price Statistics*' and are available on the CMFB website: <http://www.cmfb.org/publications/mip-documents>.

2. PROFESSIONAL INDEPENDENCE

Legal basis

National Statistical Institutes (NSIs) in Member States are producing statistics in accordance with the provisions of the national legislation regulating the basic principles for unfolding official/public statistical activities. Professional independence is specifically stated as a principle in most cases.

NSIs organise their activity taking into consideration the principles of the European Code of Practice (CoP) adopted in 2005 and revised in 2011 and 2017, principles which set out standards for developing, producing and disseminating European statistics. Moreover, Regulation (EC) No. 223/2009 is directly applicable in the Member States and does not require transposition into national law.

Statistical work programme

For all Member States producing the HPI ⁽⁴⁾, the statistical activity is carried out in accordance with Statistical Work Programmes where, in most cases, the production of this indicator is specifically addressed.. One exception is Slovakia, where the production of the HPI is not covered by the work programme, as the underlying data are obtained through a contract with an external provider.

Statistical work programmes are available online for most of the Member States. Exceptions include Hungary (published in the Official Journal), Belgium and Denmark.

3. MANDATE FOR DATA COLLECTION

NSIs have full responsibility for the production and dissemination of national house price statistics, taking into account also national specificities (e.g., for Germany this responsibility is shared between the Federal Statistical Office and the statistical offices of the 16 federal states).

At European level, the mandate for the production of the HPI is laid down in European Parliament and Council Regulation (EU) 2016/792, of 11 May 2016, repealing Council Regulation (EC) No 2494/95.

The European aggregates are computed by Eurostat by aggregating the national indices.

⁽⁴⁾ In terms of availability of data, Greece is the only Member State not delivering data as required by Regulation (EU) 2016/792. Eurostat continues to use an index of apartment prices published by the Greek national bank for the MIP exercise.

4. IMPARTIALITY AND OBJECTIVITY

The dates for the release of the HPI are included in the release calendars available online for all the MSs and Eurostat.

5. SOUND METHODOLOGY, APPROPRIATE STATISTICAL PROCEDURES, ACCURACY AND RELIABILITY

Methodological standards

For all Member States except Greece, the HPI compilation is done in line with the methodological standards set out in the [Handbook on Residential Property Prices Indices \(RPPIs\)](#).

Concepts

The HPI measures the evolution of market prices of all residential properties purchased by households (independently of the institutional sector of its previous owner and the nationality and residence of the buyer household). It includes both new and existing dwellings, regardless of whether the purchase is for own-occupancy or investment (buy to let). All types of dwellings are included ⁽⁵⁾. Both mortgage-funded and cash transactions are covered. The value of land is included in prices and weights. The house prices used are the final market prices paid by households (VAT included for new dwellings), while non-market prices (e.g. inheritances, intra-family transactions, gifts, sales to sitting tenant at discounted prices and self-build dwellings) are ruled out from the scope of the HPI. At present, almost all Member States use actual transactions prices ⁽⁶⁾. Property transfer tax and other transfer costs are not included.

For almost all Member States the geographical coverage of the house price index is the entire national territory ⁽⁷⁾.

Deviations from concepts

⁽⁵⁾ For Bulgaria and until 2021, the index covers only purchases of apartments. In the case of France, new dwellings being a part of a building program of 1 to 4 units and resales of 5-year-old and younger dwellings are excluded from calculations. In Luxembourg, new single-family houses and in Poland, all single-family houses are not included in the index.

⁽⁶⁾ In Sweden, asking prices are used in the production of the HPI for purchases of new dwellings.

⁽⁷⁾ French HPI covers Metropolitan France, excluding overseas areas. In Italy, the geographical coverage of the HPI is the entire national territory with the exception of two provinces (Trento and Bolzano) which account for approximately 2.6% of the Italian population.

The identified deviations from the above mentioned concepts are considered as not affecting the accuracy and the comparability of the index.

Data sources

In most Member States the production of the HPI is based on administrative data. Data is sourced from land registries or tax offices who usually receive the data from notary contracts. Several countries conduct statistical surveys among construction enterprises, investor, real estate agencies or notary offices ⁽⁸⁾. Moreover, two countries obtain microdata from private data providers.

Data validation

The raw data is checked for completeness and consistency with statistical concepts and definitions. Data cleaning is carried out to remove duplicated records or records with data entry errors. Transactions with insufficient characteristics variables and where imputation is not feasible are discarded. Moreover, statistical outlier detection methods are applied in order to filter out dwellings with extraordinary features that influence the price (e.g., dwellings presenting an unusual combination of characteristics). Transactions where more than one dwelling is sold in a single contract (for example in the case of a multi-dwelling building) and where the price cannot be broken down to single dwellings, are also excluded from the index.

In countries where additional sources are available, the evolution of the number of transactions from one quarter to another is examined and compared with these other sources (mainly professional associations of real estate agents) to detect possible incomplete datasets. If strong decreases are observed, the administration is contacted.

Methodology

In all Member States HPI is a chain-linked Laspeyres-type price index published using a common index reference period. The current reference year of the HPI series is 2015.

The sub-indices for the housing market segments (strata) are generally compiled using hedonic methods, a stratified mean or median approach or a method replicating the matched model approach. When using hedonic methods regression coefficients and quality indicators of the regression are monitored by Member States to ensure robustness of results.

⁽⁸⁾ In Czechia and Romania compilation of the HPI for new and existing dwellings is based on survey data. In the case of France, Netherlands and Sweden administrative data is used in calculations of the HPI for existing dwellings and calculations of the HPI for new dwellings rely on survey data.

The strata cover as a minimum a separate index for new dwellings and one for existing dwellings, and in most cases also the different types of dwellings (e.g., flats and houses). In several Member States also various geographical strata are used (capital city, major regions, etc.). The indices derived at the strata level are aggregated to higher levels (i.e., newly built and existing dwellings). The final aggregation of the indices of new and existing dwellings to the total HPI uses weights based on transaction values which are annually revised and price-updated to the last quarter of the previous year ⁽⁹⁾.

All this supports that the indices are internally coherent and comparable across Member States.

Surveys and samples

In the majority of the cases, the data sources include the totality of transactions in a certain period in a given country (the entire universe). Samples are used only in a few countries ⁽¹⁰⁾. If surveys are used, the applied sampling process generates a sample that represents price movements in the target universe and the used questionnaire covers all relevant price-determining characteristics needed for measuring the pure price changes of dwellings.

Revisions

In many Member States, at the deadline for transmission of their most recent quarterly data to Eurostat (85 days after the end of the quarter) only a fraction of transactions is available due to administrative delays between signing the contracts and transmitting the relevant information to the statistical offices. The first transmitted results are therefore often provisional and are revised with the following quarter(s). For some countries, final results can be sent to Eurostat up to one year after the first transmission took place.

6. RELEVANCE

The HPI has a variety of potential uses:

- a measure of specific price trends
- for monetary policy and inflation targeting

⁽⁹⁾ In Finland, weights for existing dwellings are based on the housing stock.

⁽¹⁰⁾ Samples are currently used in Germany in the federal State of Baden-Württemberg, in Czechia and in the Netherlands (for new dwellings). This was also the case of Bulgaria until 2021. From 2022 the Bulgarian HPI is based on an administrative data source covering all market transactions.

- for monitoring economic imbalances and financial stability (MIP headline indicator, component of the IMF's Financial Soundness Indicators)
- as input for national accounts purposes
- as an input to the construction of the owner-occupied housing (OOH) price index
- as input to economic forecasting and analysis
- as input for decision making in respect to the housing market.

Generally, the HPI can be considered suited for cross-country comparisons of the evolution of house prices.

At both national and international level, the HPI responds to the needs of a wide range of user groups interested in the behaviour of domestic housing markets: policymakers, financial and construction sector, households, related associations, researchers, media etc.

In most Member States there is no formal user consultation process but mainly *ad hoc* feedback based on direct contact of the reference persons indicated on the NSIs' websites. Eurostat stays in close contact with its main stakeholders. The HPI is also part of the Eurostat User Satisfaction Survey.

In those Member States where there is a form of measuring the users' satisfaction or needs, user demands are taken into account ⁽¹¹⁾.

7. TIMELINESS AND PUNCTUALITY

In line with Regulation (EU) No 2016/792 the HPI is transmitted to Eurostat within 85 days after the reference period. The HPI is published one quarter after the end of the reference quarter, according to the dates specified in the [Eurostat release calendar](#).

At national level, the HPIs are released in line with the national calendars published on the NSIs' websites.

8. COHERENCE AND COMPARABILITY

Consistency with related statistics

⁽¹¹⁾ An example is provided by the case of the Spanish HPI, where regional price indices are published to take into account an identified users' demand for this information.

Taking into consideration the interest for developments in the housing market, at both macro and micro level, in most of the countries there are more providers of HPIs. Nonetheless, due to differences in the data sources, concepts and methodologies used to compile these indices, they are usually not directly comparable with the HPI produced by NSIs.

Time and back data consistency

Methodological improvements and usage of more complete data sources are encouraged by Eurostat to help picturing a more accurate image of the housing market. In these circumstances, breaks in series might occur. The table below summarizes the main issues regarding the comparability over time for the HPI in each Member State.

Country	Comparability over time
Belgium	Data are available since 2005 for all index series. The data source has been improved from 2007 onwards and from that year contains information on characteristics of the dwellings which allows to use more precise hedonic regression models. From 2005 to 2013, the index for new dwellings is approximated by the producer price index for the construction sector. From 2014 onwards, this index is also based on transaction data from the land registry.
Bulgaria	<p>In principle HPI is comparable over time, but the following has to be taken into account:</p> <ul style="list-style-type: none"> • Data for 2009-2014 are provisional • Since Q1 2015 HPIs are fully comparable over time • since Q1 2022 BNSI has replaced the sampled survey with a more complete administrative data source for production of HPI for new and for existing dwellings, therefore breaks in time series must be considered • For MIP purposes, data for 2001-2009 are based on estimates.
Czechia	There have been several improvements in methodology since the HPI was introduced with the aim of improving

	<p>reliability; back calculations were performed.</p> <p>For MIP purposes, data for 2000-2007 are based on estimates.</p>
Denmark	Data are comparable over time.
Germany	<p>The published time series starts in 2000, but the coverage from 2000-2008 is based on 8 (out of 16) federal states that participated on a voluntary basis (legal basis came into force in 2013 and requested back data from 2008 onwards). However, even with the regulation in force the unit-non-response rose temporarily until 2015 because strict data specifications and transmissions standards were introduced, that had to be implemented in the reporting administrations.</p>
Estonia	Time series starts in 2005 and the HPI is considered to be consistent over time.
Ireland	<p>The HPI is considered in principle to be consistent over time. In 2016 the entire Irish HPI time series has been revised to reflect the change towards more complete administrative sources.</p>
Greece	<p>Greece does not send any data to Eurostat. The index compiled by the Bank of Greece is used by Eurostat to compute the European aggregates.</p>
Spain	<p>HPI is fully comparable over time.</p> <p>For MIP purposes, the period 2000-2005 is based on Eurostat's estimations.</p>

Country	Comparability over time
France	Data are fully comparable starting with 2000.
Croatia	HPI data are considered to be comparable over time starting with 2008.
Italy	The HPI is consistently calculated over time starting with 2010.
Cyprus	<p>The HPI is consistently calculated over time starting with 2010.</p> <p>For MIP purposes, the period 2002-2004 is based on Eurostat's estimations.</p>
Latvia	<p>Data are available starting with 2006 and are considered comparable over time.</p> <p>For MIP purposes, the period 2000-2005 is based on Eurostat's estimations.</p>
Lithuania	<p>Data are available starting with 2006 and are considered comparable over time.</p> <p>For MIP purposes, the period 2000-2005 is based on Eurostat's estimations.</p>
Luxembourg	The HPI is produced starting 2007 and considered consistent over time regarding methodology and definitions. There is a break in series in Q1 2013 due to the introduction of the existing single-family houses in the coverage.
Hungary	From 2007 on there are no breaks or inconsistencies in the HPI. However, starting from 2015 the estimation of models is based on more accurate information on dwellings sold on the market.
Malta	<p>The series starts from 2005 and is produced consistently over time.</p> <p>For MIP purposes, the period 2000-2004 is based on Eurostat's estimations.</p>

Country	Comparability over time
Netherlands	A break in the HPI time series occurs in 2015 Q1 due to a method change and a new data source for the new dwellings. The prices for existing dwellings are fully comparable over time.
Austria	The HPI is produced consistently over time starting with 2010. For MIP purposes, for the period 2000-2009, data from the National Bank of Austria are used.
Poland	The HPI series starts in 2010 and is fully comparable over time. For MIP purposes, data for 2005-2009 is based on Eurostat's estimations (confirmed with the NSI).
Portugal	Data are comparable over time (available from 2009 onwards, back estimation for 2008).
Romania	The HPI is fully comparable over time, time series starts in 2009. For MIP purposes, data for 2008 are based on estimates.
Slovenia	Data are comparable over time.
Slovakia	The new data source was introduced for the calculation of HPI in 2 nd Q 2021. The time series were linked to the previous HPI time series consistent from 2011.
Finland	Data are fully comparable from 2015 onwards.
Sweden	Starting with 2005, the HPI is comparable over time. Statistics Sweden has series starting with 1950; therefore breaks in series for years before 2005 are inherent.

9. ACCESSIBILITY AND CLARITY

The HPI is published on the NSIs' and Eurostat's websites in accordance with the publicly available release calendars. In general, the HPIs disseminated at national level are the same

as the HPIs collected and published by Eurostat ⁽¹²⁾. Eurostat has encouraged Member States to release the same indices as those sent to Eurostat and, when this does not happen, to provide clear explanations on the differences between the indices provided to Eurostat and those available nationally.

Metadata for all countries (except for Greece), as well as methodological information, are available on Eurostat website, in the Housing statistics dedicated section, which can be accessed through the following link: <http://ec.europa.eu/eurostat/web/housing-price-statistics> .

⁽¹²⁾ There are a few exceptions. For instance, Finland does not disseminate in their website the (overall) HPI and Spain compiles its national HPI for new dwellings from transaction prices excluding value added tax.