House Price Index Revision

2024-03-25

Overview

The House Price Index (HPI) tracks transaction price changes of residential real estate that has been available since the first quarter of 2010. It is a harmonized statistic whose methods and data sources are developed jointly with other countries as part of the European Statistical System. A new implementing act (2023/1470) has been in force since January 1, 2024 necessitating an index revision.

With the publication of the 4th quarter of 2023, on March 25, 2024, a revised HPI time series has been published from 2010 to 2023. The old time series will be discontinued, but will be preserved in the "Historical Data" section of the project website. In summary, the most significant changes are:

- Improvements in data processing
- Calculation of an index for new houses instead of the prefabricated house index and changes in classification
- Revised models with improved consideration of location quality
- Regional breakdown into western, eastern and southern Austria, as well as Vienna
- Improvements to index weights
- More published information

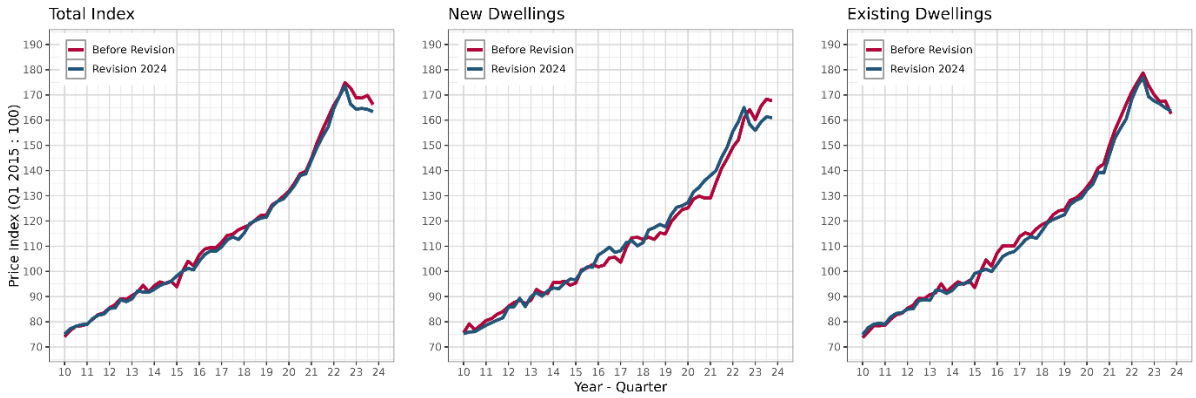

Figure 1: Comparison of indices before (red) and after the revision (blue). The largest difference concerns new dwellings, where new houses are now included through land register data.

Detailed changes

Data processing

Since the original publication of the HPI in 2015 many improvements to our data processing methods and infrastructure were made. Contracts stored in the land register are still the main data source of the House Price Index, but significant improvements were made in the linking of purchase contracts with the Building and Dwelling register. This leads to an overall increase in the number of transactions included in the index. In addition, cadastral data from the BEV is used to locate undeveloped properties and to check the plausibility of reported plot sizes. Real estate transfer tax data and the Average Property Prices project calculated since 2017 also serve as an additional data source for plausibility checks. Supported by a Eurostat grant, it was also possible to develop an application for data visualization in which individual data or an individual subset can be analysed.

New dwellings fully covered with land register data

The new European implementing act requires the use of transaction data from the land register for the HPI. During early HPI development the index for new houses showed a low number of transactions, so it was decided to represent this position through developments in the prefabricated house prices via a survey of manufacturers. Due to the data processing improvements, it is now possible to use the land register transactions directly and meet the legal requirements.

In addition, the definition of new construction was adjusted. Two groups have been defined in order to differentiate between properties that have been newly constructed in the short term and those that have been completed some time ago:

1) "Core" group: completion not far in the past, the rules are:
    a. buildings were completed up to 365 days before the date of the purchase contract, or
    b. the date of the building permit is up to 730 days before the purchase, or
    c. if date entries are incomplete, the year of construction must be in the future or in the year of the purchase contract
2) "Extended" group: Including transactions dating back longer; following rules apply:
    a. does not fall into categories of the "core" definition
    b. buildings were completed up to 730 days before the purchase contract date, or
    c. the date of the building permit is up to five years before the purchase, or
    d. the seller is a construction company and the construction date is within the last five years

For the purposes of the HPI, both the "Core" and "Extended" groups are considered to be new dwellings.

Reworked regression models

The HPI remains a "hedonic repricing" price index, a method in which the overall index is calculated by combining a geometric mean price index with a special index that measures quality characteristics. This index is based on annually updated regression models, which have now been significantly improved. The most significant change is the use of smaller area definitions for modelling the location, in most cases at district level. In addition, public transport quality classes, population density measures (DEGURBA) and the distance to the next largest city with a population of 30,000 or more are modelled. As in the previous model specification, the number of inhabitants and the average income of the municipality are included in the regression. The characteristics of the property remain the same: age, represented by construction periods, floor area (usable and possibly floor space) and, in the case of apartments, the presence of outdoor space or parking facilities. The models now benefit over the entire time series from the improved data preparation since the initial publication.

New regional structure

For the revision of the index, the strict regional separation of the sub-indices into Vienna, provincial capitals and the rest of Austria was dissolved, as only a few transactions were available in some groups and the volatility of these indices was therefore high. In addition, the information content was limited due to the partly non-contiguous or very large regions. In order to obtain indices that are as reliable as possible at the lower levels, the index is now based on three regions: Western, Eastern and Southern Austria. The definition of these regions is based on NUTS-3 regions, but was not directly aligned with

the NUTS-1 regions. Instead, consideration was given to the homogeneity of the real estate markets in the regions.

The breakdown presented is applied directly to houses, while Vienna is also calculated separately for used and new apartments. In the case of new houses, however, only one index is calculated for the whole of Austria due to the smaller number of transactions. The development of regional indices was supported by a Eurostat grant project in 2017 and 2018.

Table 1: HPI weights after revision for 2023 in percent. Missing values mean that the calculation is carried out at a different level, e.g. Eastern Austria instead of Vienna, or regional instead of national level. The weighting is based on the transaction volume of the previous year, in this case 2022, in euros.

Gewichtung Gesamtindex, 2023		*Western Austria*	*Southern Austria*	*East Austria*	*Vienna*	*National*	Sum
Houses	*Existing*	6,4	6,4	18,4	-	-	**31,2**
	New	-	-	-	-	6,0	**6,0**
Flats	*Existing*	11,5	6,0	7,3	12,3	-	**37,2**
	New	6,1	3,4	6,0	10,2	-	**25,6**
Sum		**24,0**	**15,8**	**31,7**	**22,5**	**6,0**	**100,0**

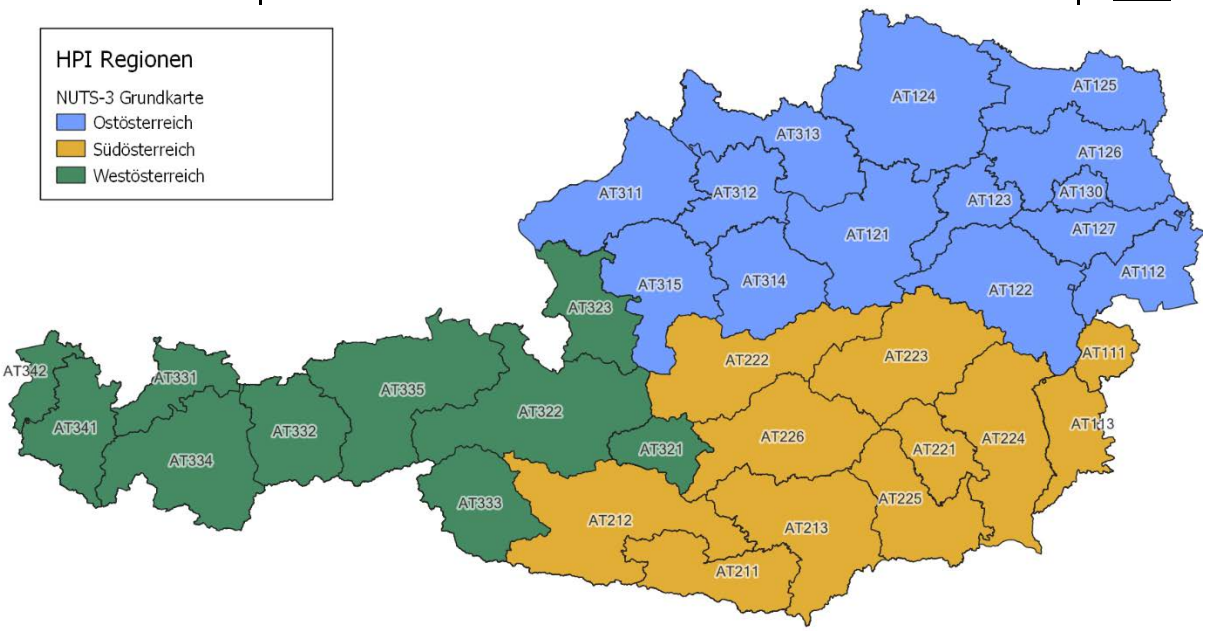

Figure 2: The federal provinces Vorarlberg, Tyrol and Salzburg form the index region "Western Austria". Upper Austria, Lower Austria, Vienna and the northern Part of Burgenland form the index region "East Austria". Carinthia, Styria and the rest of Burgenland form "Southern Austria".

Improved weights

Statistics Austria has been publishing transaction numbers and transaction volumes in euros for new and existing residential properties on a quarterly basis since December 2021. As there is a delay between the last signature of a purchase contract and the registration at the district court and the delivery of data to Statistics Austria, it is necessary to estimate subsequent deliveries over longer periods of time. The monthly processing times of the district courts are analysed for this estimate. The most recent transaction volumes from this analysis for the previous year are now used when compiling the HPI weighting in June and the index weighting between new and existing properties is therefore methodologically consistent with this. The development of these transaction indicators was funded by

a Eurostat grant project in 2017 and 2018 and will be used to aggregate the country indices into an EU aggregate in the future.

More information published as special evaluation

Further improvements to the production system have made it possible to provide the regional sub-indices on a quarterly basis. Federal state indices are still only compiled once a year, as the index series here can be very volatile. Arithmetic mean values of the quarterly indices are now provided for the federal states instead of the originally calculated annual indices.