

HOUSE PRICE INDEX
REFERENCE METADATA IN EURO-SDMX METADATA STRUCTURE
COMPILING AGENCY: STATISTICAL SERVICE OF CYPRUS

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2. Metadata update	
2.1 Metadata last update	12 July 2016

3. Statistical presentation

3.1 Data description

House Price Index (HPI) is a quarterly index which measures the change in the average prices of residential dwellings. It captures all types of residential properties, both new and existing. The land component of the residential property is included.

3.2 Classification system

The HPIs are classified according to the following categories:

H.1. Purchases of dwellings

H.1.1. Purchases of new dwellings

H.1.2. Purchases of existing dwellings

3.3 Sector coverage

ESA 2010 Sector S.14 (Household Sector)

3.4 Statistical concepts and definitions

The following data are available:

-Index HPI 2010=100

-Percentage change compared to same quarter of the previous year.

-Percentage change compared to the previous quarter of the same year.

HPI measures the price change of residential dwellings in the reference period compared to the base period. All transactions of residential dwellings are included. Non-marketed prices (e.g., self-built dwellings) are excluded. Residential dwellings bought for uses other than owner-occupancy are included (e.g., to rent it out). New and old dwellings are included.

Index figures for purchases of dwellings are compiled on the basis of full transaction price which includes the value of land. HPI is a Laspeyre's type index as the Harmonized Index of Consumer Prices. Annual weights are the expenditure shares of strata in the previous year.

3.5 Statistical unit

Residential property transactions.

3.6 Statistical population

All transactions of residential dwellings.

3.7 Reference area

Data refers to the area which is under the control of the government of the Republic of Cyprus

3.8 Time coverage

Data are available since the first quarter of 2010.

3.9 Base period

2010=100

4. Unit of measure

Index figures can be interpreted as follows:

Index equals 100 in the base period. For any other period the index represents the amount that the buyer would have to spend on average in that period to buy a residential property having a value of 100 in the base period.

5. Reference period

The compiled quarterly indices cover the whole calendar quarter.

6. Institutional mandate

6.1 Legal acts and other agreements

-Commission Regulation on Owner Occupied Housing No 93/2013 provides for the quarterly transmission of HPI data by 85 days after the end of the quarter and of the annual weights by 15 June of year following the year to which the weights relate.

-The Statistics Law No. 15(I) of 2000

-According to article 10 of the Statistics Law No.15(I) of 2000, the Statistical Service has the right of free access to the administrative records of the ministries and services of the government of the Republic and of public corporations, to the extent to which the data to be collected is necessary for the production of statistics.

6.2 Data sharing

None

7. Confidentiality

7.1 Confidentiality - policy

According to Regulation (EC) No. 223/2009 Article 20 (4) NSI's shall take all the necessary regulatory, administrative, technical and organizational measures to ensure the physical and logical protection of confidential data.

According to the Statistics Law No. 15(I) of 2000 article 13.5(a), the persons authorized to require from any person the provision of data for the purposes of a survey or work carried out by virtue of this Law, have the obligation to make a confirmation that they shall not disclose information which they have received during the conduct of the survey. This obligation continues to exist after the termination of their professional relationship with the service for which they have collected the information.

Data is published according to the OOH Commission Regulation (EU) No. 93/2013.

7.2 Confidentiality - data treatment

See point 7.1.

8. Release policy

8.1 Release calendar

HPI for the first quarter of 2016 would be released by CYSTAT during the second quarter of 2016.

8.2 Release calendar access

The release calendar is presented on CYSTAT's website.

http://www.cystat.gov.cy/mof/cystat/statistics.nsf/releasecalendar_en/releasecalendar_en?OpenDocument

8.3 User access

Data are currently disseminated on Eurostat's website, but they would be also announced on CYSTAT's website for the first quarter of 2016 during the second quarter of 2016.

9. Frequency of dissemination

Quarterly.

10. Dissemination format

10.1 News release

Planned to start in the second quarter of 2016.

10.2 Publications

Planned to start in the second quarter of 2016.

10.3 On-line database

None.

10.4 Micro-data access

None.

10.5 Other

None.

11. Accessibility of documentation

11.1 Documentation on methodology

HPI methodology is available on Eurostat's website:

http://ec.europa.eu/eurostat/cache/metadata/en/prc_hpi_esms.htm

11.2 Quality documentation

None.

12. Quality management

12.1 Quality assurance

The methodology used for the compilation of the House Price Index is in compliance with the Methodological Manual referred to in the Commission Regulation (EU) No 93/2013 and the Residential Property Price Indices Handbook.

12.2 Quality assessment

The quality of the House Price Index is assessed on the basis of the Methodological Manual published by Eurostat. Every effort is made in order to maintain and improve the quality of the House Price Index.

13. Relevance

13.1 User needs

The HPI interests all the users that follow the developments in the house price market.

13.2 User satisfaction

None.

13.3 Completeness

The datasets provided to EUROSTAT are:

H.1. Purchases of dwellings,

H.1.1. Purchases of new dwellings,

H.1.2. Purchases of existing dwellings.

14. Accuracy and reliability

14.1 Overall accuracy

For a number of sales, the square meters are not available. As a result, the accuracy of the index may be affected by the fact that these transactions cannot be used.

14.2 Sampling error

Not applicable.

14.3 Non-sampling error

Incomplete data on dwellings characteristics. The data obtained from the Department of Lands and Surveys is incomplete as regards dwellings characteristics. Therefore, the hedonic model used for the compilation of the Cypriot HPI includes only a few explanatory variables and does not adjust for some important housing standards (e.g. condition, view) and for the age of the building.

15. Timeliness and punctuality

15.1 Timeliness

Data are transmitted to Eurostat according to the OOH Regulation (indices: 85 days after the reference period and weights on the 15th of June of the year following the year to which the weights relate). Some changes/improvements as regards the timeliness of HPI during the last two years have occurred and mainly have to do with the improvement of the data collection and data processing.

15.2 Punctuality

The HPI data is transmitted to Eurostat according to the transmission calendar.

16. Comparability

16.1 Comparability - geographical

It is possible to compare the Cypriot House Price Index with the House Price Indices of other Member States.

16.2 Comparability - over time

For the period 2010-2014, a proxy for the indicator of luxury dwellings was used. An indicator of luxury dwellings based on real data has been used since the first quarter of 2015. Although it is assumed that the proxy is a good approximation of the indicator, this change may cause a break in the series.

17. Coherence

17.1 Coherence - cross domain

The OOH may partly overlap the scope of the HPI. The Central Bank of Cyprus (CBC) compiles a Residential Property Price Index based on property valuations. The Royal Institution of Chartered Surveyors in Cyprus publishes a quarterly price index that tracks property across all districts and across all property types in Cyprus.

17.2 Coherence - internal

All figures are checked for internal consistency.

18. Cost and burden

In total, seven people are involved in the production of the HPI. Their full time equivalent is estimated to one full time employee. The main tasks undertaken to produce the HPI are: data collection, processing of data, validation/consistency checks, compilation of the index and transmission of the index to Eurostat. The main source of the data is the Department of Lands and Surveys. No data is being purchased.

19. Data revision

19.1 Data revision - policy

The main reasons for revisions are new or revised datasets, calculation mistakes or revisions of the compilation method.

19.2 Data revision - practice

All data are considered as provisional, or revised where this is applicable. At first release some data might be provisional. The data become final as soon as all data used in the compilation become final.

20. Statistical processing

20.1 Source data

The only administrative data source used for both prices and weights is the Department of Lands and Surveys, Ministry of Interior. The data cover all areas which are under the control of the government of the Republic of Cyprus. The data sets made available to CYSTAT include new and used houses and apartments. The transactions covered are sales and contracts of sales of dwellings (actual price of each dwelling sold). The following characteristics are included in the data sets: district, town or village, quarter, registration number, declared price, accepted price, property type, agreement date, acceptance date, square meters (enclosed, covered and uncovered area of the dwelling).

There is no restriction for CYSTAT regarding the access of the data. According to the Statistics Law (15) of 2000, Article 10, the Statistical Service has the right of free access to the administrative records of the ministries and services of the government of the Republic.

20.2 Frequency of data collection

Quarterly.

20.3 Data collection

Administrative data are received quarterly from the Department of Lands and Surveys, Ministry of Interior. CYSTAT has allocated staff to the Department of Lands and Surveys in order to collect the data needed for contracts of sales. CYSTAT has also come to an agreement with the Department of Lands and Surveys to receive all the necessary data regarding sales. Since additional characteristics for new and second-hand dwellings are needed in order to build an appropriate model, CYSTAT is currently examining the possibility of receiving additional characteristics from the Department of Lands and Surveys in order to compile revised figures for HPI.

20.4 Data validation

Data are checked for internal consistency.

20.5 Data compilation

Strata

Old and new dwellings

Method of calculation of the index in each stratum

In order to calculate the sub-indices for old and new dwellings, a hedonic model of the following form is used in each stratum:

$$\log p = X\beta + c_t I_t + c_{t-1} I_{t-1} + c_{t-2} I_{t-2} + \varepsilon,$$

where p is the price, X is the matrix of characteristics, I_t, I_{t-1}, I_{t-2} are the time dummy variables for the quarter t and the previous two quarters, respectively and ε are the error terms.

The rolling window method uses a rolling window length of $M=4$ quarters.

An initial regression model is estimated and the appropriate indices are calculated using data pertaining to the first $M=4$ quarters of the data set, where M is the window length, i.e., the number of periods used in each regression. In our case, the dataset includes all transactions of dwellings for all quarters from 2010 and the initial regression is based on the first 4 quarters of 2010.

For the next quarter, a new regression model is estimated where the data consist of the initial data less the data for period

(quarter) 1 of 2010 but adding the data for period (quarter) $M+1=5$, in our case the 1st quarter of 2011. Appropriate price indices are calculated for this new regression model, but only the rate of increase/decrease of the index from period M to $M+1$ is used to update the previous sequence of M index values. Given the estimated parameters of the model $\hat{\beta}, \hat{c}_{M+1}, \hat{c}_M, \hat{c}_{M-1}$, the index from period M to $M+1$ is calculated as the ratio:

$$\exp(\hat{c}_{M+1}) / \exp(\hat{c}_M).$$

This procedure is continued with each successive regression dropping the data of the previous earliest period and adding the data for the next period, with one new update factor being added with each regression.

Calculation of weights

In order to calculate weights the following method is used:

For the 1st quarter of each year, the annual weights of the previous year are used since the base period is the 4th quarter of the previous year. In order to calculate these weights the following formulae are used:

$$W_{old,1} = \frac{\sum_{i=1}^{N_1} P_i}{\sum_{i=1}^{N_0} P_i}, \quad W_{new,1} = \frac{\sum_{i=1}^{N_2} P_i}{\sum_{i=1}^{N_0} P_i},$$

where P_i is the transaction price for dwelling i , N_1 is the number of transactions of old dwellings for the previous year and N_2 is the number of transactions of new dwellings for the previous year and $N_0 = N_1 + N_2$ is the number of transactions of all dwellings for the previous year.

For the 2nd quarter the weights of the previous year are updated to the 1st quarter of the year (which is the base period) in the following way:

$$W_{old,2} = \frac{I_{old,1} \sum_{i=1}^{N_1} P_i}{I_{old,1} \sum_{i=1}^{N_1} P_i + I_{new,1} \sum_{i=1}^{N_2} P_i}, \quad W_{new,2} = \frac{I_{new,1} \sum_{i=1}^{N_2} P_i}{I_{old,1} \sum_{i=1}^{N_1} P_i + I_{new,1} \sum_{i=1}^{N_2} P_i},$$

where $I_{old,1}$ is the HPI for old dwellings in the first quarter and $I_{new,1}$ is the HPI for new dwellings in the first quarter (with base period the last quarter of the previous year).

For the 3rd quarter the weights of the previous quarter are updated to the 2nd quarter of the year (which is the base period) in the following way:

$$W_{old,3} = \frac{I_{old2}I_{old1}\sum_{i=1}^{N_1} P_i}{I_{old2}I_{old1}\sum_{i=1}^{N_1} P_i + I_{new2}I_{new1}\sum_{i=1}^{N_2} P_i}, \quad W_{new,3} = \frac{I_{new2}I_{new1}\sum_{i=1}^{N_2} P_i}{I_{old2}I_{old1}\sum_{i=1}^{N_1} P_i + I_{new2}I_{new1}\sum_{i=1}^{N_2} P_i},$$

where $I_{old,2}$ is the HPI for old dwellings in the 2nd quarter and $I_{new,2}$ is the HPI for new dwellings in the 2nd quarter (with base period the first quarter of the year).

For the 4th quarter the weights of the previous quarter are updated to the 3rd quarter of the year (which is the base period) in the following way:

$$W_{old,4} = \frac{I_{old3}I_{old2}I_{old1}\sum_{i=1}^{N_1} P_i}{I_{old3}I_{old2}I_{old1}\sum_{i=1}^{N_1} P_i + I_{new3}I_{new2}I_{new1}\sum_{i=1}^{N_2} P_i},$$

$$W_{new,4} = \frac{I_{new3}I_{new2}I_{new1}\sum_{i=1}^{N_2} P_i}{I_{old3}I_{old2}I_{old1}\sum_{i=1}^{N_1} P_i + I_{new3}I_{new2}I_{new1}\sum_{i=1}^{N_2} P_i}$$

where $I_{old,3}$ is the HPI for old dwellings in the 3rd quarter and $I_{new,3}$ is the HPI for new dwellings in the 3rd quarter (with base period the second quarter of the year).

Calculation of Index

When $I_{new,t}$ the HPI for new dwellings at quarter t with base period the previous quarter t-1, and $I_{old,t}$ the HPI for old dwellings at quarter t with base period the previous quarter t-1 are obtained with the method described above, the House Price Index for all dwellings (old and new) at quarter t, I_t , with base period the previous quarter t-1, is calculated as follows:

$$I_t = I_{old,t}W_{old,t} + I_{new,t}W_{new,t}$$

20.6 Adjustment

The rolling window method described in **20.5** is used to adjust for the differences in properties transactions.