STATISTICS DENMARK

Documentation of statistics for
Sales of Real Property (Quarterly) 2017 Quarter 2

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1 Introduction (S.0)

The purpose of the statistics for sales of real property is to analyze the quarterly number of sales and the price trends for specified categories of real property.

The statistics are primarily used for monitoring the economic business cycle. Different methods have been used and with different frequencies since 1923, but in its present form the statistics are comparable from 1992 onwards.

2 Statistical presentation (S.3)

This statistic is a quarterly statement of price and volume trends in real estate transactions, calculated as price index and number of sales. The statistics are broken down by category of real property, type of transfer and geography.

2.1 Data description (S.3.1)

The statistics are compiled as quarterly price index for one-family houses, owner-occupied flats, weekend cottages and commercial properties . The statistics also contains the following key figures; · Number of sales in the price calculation · Average price per property (dkk 1000) · Purchase sum per hectare (agriculture)/m2 (building sites) · Purchase sum in percent of taxable value · Estimated number of sales

The statistics does not include a total price index for all categories of real properties.

2.2 Classification system (S.3.2)

The statistics are grouped geographically and by type of transfer and type of real property. The geographic breakdown follows the Common European geographical and administrative division known as NUTS for regions and provinces. The breakdown in type of transfer is divided into ordinary free trade, intra-family sales and other sales. The categories of real properties are generated from information in the collected data combined with use codes from the Tax Authorities. Since 2. quarter 2011 , the following categories of real properties are used:

· One-family houses · Residential properties with 2 or 3 flats · Residential properties with 4 flats and over · Residential and business properties · Business properties · Industrial properties and warehouses · Agriculture properties, total (agricultural land prices can be found in table LPRIS35 in the StatBank) · Weekend cottages · Building sites (unbuilt area not agriculture) total · Owner-occupied flats, not free · Owner-occupied flats, free · Owner-occupied flats, total

For the period 1. quarter 1992 to 1. quarter 2011 the following categories are available in the StatBank. Hereafter the data are updated only in the Payment Data Bank: · Residential properties with 2 flats · Residential properties with 3 flats · Residential properties with 4 -8 flats · Residential properties with 9 flats and over · Agricultural properties 10-100 hectares · Agricultural properties 2-5 hectares · Agricultural properties 5-10 hectares · Agricultural properties 10-15 hectares · Agricultural properties 15-30 hectares · Agricultural properties 30-60 hectares · Agricultural properties over 60 hectares · Agricultural properties 60-100 hectares · Agricultural properties over 100 hectares · Building sites (unbuilt area not agriculture) under 2000 m2 · Building sites (unbuilt area not agriculture) 2000 m2 and over

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2.3 Sector coverage (S.3.3)

Not relevant for this statistics.

2.4 Statistical concepts and definitions (S.3.4)

SPAR-value: The sales price divided by the appraisal (SPAR = Sales Price Appraisal Ratio)

Ordinary free trade: Comprises sales between parties who are not members of the same family and sales, which are not considered as a partial gift.

Other Sales: Comprise sales, which are not ordinary free trade or intra- family sales, e.g. sale by order of the court (compulsory sale).

Number of sales in the price calculation: All sales, which meet the following conditions are included in the price calculations:

- No special conditions are occurring, as for instants partial property sold, more than one property sold, seller is a public authority, sales information is missing or the price is exorbitant.
- The buyer is a private person.
- For residential properties with 4 flats and over, residential and business properties, business properties, industrial properties and warehouses, sales where the buyer is a company are included as well.

Estimated number of sales: The estimated number of sales based of the delay pattern of the previous year. The number of sales is enumerated because the statistics is compiled before the total number of sales for the period has been registered.

Intra-family sales: Sales between spouses or between persons, who are related by marriage, even if the sale does not include a gift.

Average price per property: Calculated as an arithmetic average of the sales included in the price calculation.

Purchase sum in per mille of taxable value (spar-value): The average price in per mille of the average appraisal.

Purchase sum per hectare /square meters (agricultural properties/building sites): Only available for agricultural properties (hectares) and building sites (square meters).

2.5 Statistical unit (S.3.5)

The statistical unit is a registrated property in connection with sales.

2.6 Statistical population (S.3.6)

The population covers all sales of the included types of real properties.

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2.7 Reference area (S.3.7)

Denmark.

2.8 Time coverage (S.3.8)

1992- to present.

2.9 Base period (S.3.9)

The index reference period is 2006=100.

2.10 Unit of measure (S.4)

The statistics covers price indices and number of sales. Values are shown in 1.000 DKK

2.11 Reference period (S.5)

In connection with sales, the contract date is used as accrual period in the statistics. If the contract date is unknown, date of the deed is used instead.

2.12 Frequency of dissemination (S.9)

Quarterly. Yearly.

2.13 Legal acts and other agreements (S.6.1)

The legal authority to collect data is provided by the Act on Statistics Denmark, section 6, as subsequently amended (most recently by Act no. 599 of 22nd of June, 2000).

In connection with the Harmonized Consumer Price Index (HICP), the legal authority to collect data is provided by the EU-regulation 2016/792 of 11 May 2016 regarding consumer prices and the house price index.

2.14 Cost and burden (S.16)

The statistics are based on administrative records. Therefore there is no direct burden to the compilation of these statistics. Data comes from the electronic land registration system for registration of ownership of real properties.

2.15 Comment (S.19)

Additional information can be required by contacting Statistics Denmark.

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3 Statistical processing (S.18)

Data concerning the registration of ownership of real properties is collected on a weekly basis from the electronic land registration system via the Tax Authorities. The data is checked for errors by the Tax Authorities and Statistics Denmark. The sales of real properties in the reference period are added together and sorted by categories of real properties. Then key figures and quarterly price indices are calculated.

3.1 Source data (S.18.1)

In connection with registration of sales of real properties the information is collected from the electronic land registration system to the Tax Authorities. Every week Statistics Denmark receives information about each transaction from the Tax Authorities.

3.2 Frequency of data collection (S.18.2)

Data is collected on a weekly basis from the electronic land registration system.

3.3 Data collection (S.18.3)

Data is collected from the Tax Authorities.

3.4 Data validation (S.18.4)

Data from the electronic land registration system is checked for errors by the Tax Authorities. When Statistics Denmark receives data, the data is checked for errors in each variable for statistical use. This includes checking for valid dates etc. Furthermore observations are being removed from the price calculations if there are special conditions. For more information see the variable 'number of sales in the price calculation' under 2.04.

3.5 Data compilation (S.18.5)

The sales of real properties in the reference period are added together and sorted by categories of real properties. Then key figures and quarterly price indices are calculated.

3.6 Adjustment (S.18.6)

To the extent that quality differences are reflected in the appraisal, the spar-value correct the price index for these quality differences. The method is internationally accepted and known as the SPAR method (Sales Price Appraisals Ratio).

4 Relevance (S.12)

There is a great interest for the published numbers among users, which follows the currently economic business cycle. The statistics of sales of real properties are relevant for the banking- and financial sector, real estate agents, politicians, researchers and the news media. The users consider the statistics for sales of real properties as an important economic indicator. The statistics have a high profile in the press and among other professional users.

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4.1 User Needs (S.12.1)

The statistics is, among other things, used for monitoring short-term economic trends. Estate agents and other interested parties use the statistics to follow developments in the number of sales and prices for different types of real property within selected geographical areas.

4.2 User Satisfaction (S.12.2)

There is not gathered knowledge of user satisfaction for this statistic. However, in 2013 a contact group consisting of internal and external experts in this area was established. The primary task of the contact group is to discuss and evaluate the published results as well as planned developments in the area. The contact group also debates the current trends and issues around price index for real properties.

4.3 Data completeness rate (S.12.3)

The European Commission has adopted a new regulation (no. 792/2016) concerning harmonized consumer price indices. This regulation establishes a "housing price index" (House Price Index - HPI) in order to improve the relevance and comparability of the consumer price index. The Regulation obliges Member States to follow a common structure to produce and transmit price index for households' purchases of owner-occupied housings (including dwellings in housing cooperatives) under the auspices of the HICP. Price index for dwellings in housing cooperatives is under development and should be included in the House Price Index.

5 Accuracy and reliability (S.13)

There is no sampling error in the final figures, but the price indices are still subject to some degree of uncertainty. This is due to the fact that the same houses are not sold in each period which makes it necessary to control for quality changes between sold houses. No matter how this quality correction is done it will always contains some degree of uncertainty. The statistical uncertainty is explained here. Bias on the preliminary price indices is close to 0, while the average deviation is about 0.3 for the quarterly figures.

5.1 Overall accuracy (S.13.1)

The final figures contains almost all transactions of real estates and the number of sales is therefore likely to have a high precision. However, the final price indices are subject to some degree of uncertainty. This is due to the fact that there is variation in what properties there are transacted in each period. So even though the actual sales prices are known, the price development depends on the quality and number of transacted properties. This leads to a statistical uncertainty, which is important to take into consideration when using this statistics. The quality correction is done by calculation the spar-value for each single property, which is the price divided by the appraisal (Sales Price Appraisal Ratio-method). However, the spar-value has two limitations: Firstly, two identical properties with the same quality and comparable location is not necessary sold at the same price at a certain time, since the market is not perfectly transparent. For example can one seller get a higher price if he can wait for the 'right buyer'. There is always an element of uncertainty in the transacted price. Secondly, two identical properties does not necessarily have the same appraisal-value. The preliminary figures are subject to some uncertainty. This is due to the fact that the calculation is done before all transactions have been registered into the electronic land registration system. The actual period is based on approximately 90 percent of all transactions in this period. The second time the period is published approximately 95 percent of all transactions is included in the calculation. Bias shows if the revisions of the price indices in averages is under- or overestimated. Bias is calculated as the average of the monthly deviations in percentage points. Deviation shows how close the first publication of a period is to the final version. Bias and deviation of price developments are described throughout the published New articles.

5.2 Sampling error (S.13.2)

The preliminary price indices are revised since they are based on an incomplete dataset since not all transactions have been registered in the electronic land registration system at the time of when the calculation is done.

5.3 Non-sampling error (S.13.3)

The final figures are based on almost all transactions. However, price indices are subject to statistical uncertainty. This is due to the fact that there is variation in what properties that are transacted in each period. So even though the actual sales prices are known, the price development depends on the quality and number of transacted properties. The uncertainty of the quarterly price indices at the nation wide level is +/- 1.1 percentage points for one-family houses and +/- 1.7 percentage points for owner-occupied flats. The uncertainty is higher for owner-occupied flats than for one-family homes because the number of transactions are lower. The uncertainty is higher at regional level than at the nationwide level because the number of transactions are lower. The statistical uncertainty for house price indices is explained here .

The preliminary figures are revised for two reasons: Firstly, there can be sampling errors since the calculations is done before all transactions have been registered into the electronic land registration system. Secondly, the base year of the appraisals is changed once a year in order to include the newest information of changes in the property stock, for example new buildings.

5.4 Quality management

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

5.5 Quality assurance

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

5.6 Quality assessment (S.11.2)

Properties that are sold at different times are different in terms of size, location and standard. In order to calculate the pure price development between different periods Statistics Denmark uses a method which adjusts for some of these quality differences. For each property the sales price is divided by the appraisal, which is called the 'spar-value'. It is this spar-value that is used in the calculation of the price indices and not just the pure sales price. The method is internationally accepted and is known as the SPAR-method (Sales Price Appraisal Ratio). The SPAR-method is also used in Sweden and the Netherlands.

Analysis made by Statistics Denmark shows that the transactions of properties is typically registered into the electronic land registration system close to the acquisition date, which is the time when the new owners gets the key to their new property. The acquisition date may be relatively long time after the transaction date. The analysis also shows that the period between the transaction-date and the acquisition date is longer for more expensive properties than for cheaper properties. At the same time analysis also shows that expensive properties is more likely to have a relatively lower appraisal than cheaper properties. That is, the appraisals for expensive properties is typically less than the sales price while it is opposite for the cheaper properties where the appraisals typically is higher than the sales price. The preliminary price indices are calculated in a way that adjust for these circumstances in order to keep the bias and deviation as low as possible. The method is described in detail: here.

5.7 Data revision - policy

Statistics Denmark revises published figures in accordance with the Revision Policy for Statistics Denmark. The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

5.8 Data revision practice (S.17.2)

The quarterly figures are revised 2 times. The calculation is made on the basis of the transactions which have been registered in the electronic land registration system at the time of calculation. The preliminary figures are calculated based on an incomplete set of data since not all transactions have been registered at the time of calculation.

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6 Timeliness and punctuality (S.14)

The quarterly figures are published no later than 3 months after the end of the quarter (reference period). The annual statistics (the final figures) are published no later than 10 months after the end of the year (reference period). Punctuality is very high, as delays in the planned release happens extremely rarely.

6.1 Timeliness and time lag - final results (S.14.1)

The quarterly statistics is published within 3 month after the reference period and is revised 2 times before the figures are declared as final. The yearly statistics is published approximately 10 month after the year in question and is not revised as the figures are declared as final.

6.2 Punctuality

The statistics is published without delay in the pre-announced release date.

7 Comparability (S.15)

The quarterly statistics for sales of real property have methodically developed over time. However since 1992 - when some methodological improvements were implemented - the statistics have been processed in accordance with the same principles.

7.1 Comparability - geographical (S.15.1)

Comparable house sales statistics for all EU member states can be found on the Eurostats website where figures are published around 100 days after the end of a quarter (reference period).

7.2 Comparability over time (S.15.2)

The sales of real property statistics have methodically developed over time. However since 1992 - when some methodological improvements were implemented - the statistics have been processed in accordance with the same principles.

In calculating price indices, the ratio between the sales price and appraisal (spar-value) is used to quality adjust the properties in order to calculate the pure price change (SPAR-method). In 2014 Statistics Denmark carried out retrospective calculations of the tables ejen55, ejen66, ejen77 and ejen88. Originally the series started in 2006 due to the local government reform by. 1.1.2007. The series is now brought back to 1992 based on historical data. For ejen77 and ejen88 the data is comparable to the originally data, but now based on the new geographical subdivisions. However, it was not possible to calculate hectares prices for agricultural property for the period 1992-1999. For ejen55 and ejen66 the price indices might in some cases differ from the historical tables, among others for Counties. This applies especially for the overlap periods where the base year of the appraisals have been changed. It was not possible to calculate the price index for the Province Bornholm due to the local government reform in 2003. The yearly price indices are calculated as an unweighted average of the quarterly figures, which may also contribute to minor differences.

7.3 Coherence - cross domain (S.15.3)

Read an analysis of a comparison of different house price statistics in Denmark: http://www.dst.dk/analyser. However, this analysis is only available in Danish.

7.4 Coherence - internal (S.15.4)

Not relevant for this statistics, as the data comes from a single data source.

8 Accessibility and clarity (S.10)

The quarterly statistics for sales of real properties is published in News from Statistics Denmark. Detailed figures can be found in StatBank and in the [Online payment data bank] (http://www.dst.dk/betalingsdatabank. The figures are also included in the Statistical Yearbook and Statistical Ten-Year Review. Historical figures can be found here: Historical sales of real property

8.1 Release calendar

The publication date appears in the release calendar. The date is confirmed in the weeks before.

8.2 Release calendar access

The Release Calender can be accessed on our English website: Release Calender.

8.3 User access

Statistics are always published at 9:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published. Theme publications etc. may be published at other times of the day. The National Statistician can decide that such publications may be released before their official publication time, e.g. to the media and other stakeholders.

8.4 News release (S.10.1)

The quarterly statistics for sales of real properties are published in News from Statistics Denmark.

8.5 Publications (S.10.2)

Information on sales of real properties are included in the Statistical Yearbook and Ten-Year review. The statistics had its own annual Publications from 1923 to 1983, except for the period 1937-1950.

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8.6 On-line database (S.10.3)

The quarterly sales of real properties is published in Statbank under the topic 'prices and consumption', Real Estate, where the following tables are available with quarterly figures: · EJEN5: Price indices on nationwide level · EJEN55: Price indices by regions and provinces · EJEN77: Key figures by regions and provinces · EJENEU: EU-harmonized house price index (HPI)

Annual figures are available in these tables: · EJEN6: Price indices on nationwide level · EJEN66: Price indices by regions and provinces · EJEN88: Key figures by regions and provinces

The following tables are only available in the Online Payment Database: · EJS10: Key figures by municipalities (quarterly) · EJS20: Key figures by municipalities (yearly) · EJS30: Key figures by postal codes (quarterly) · EJS40: Key figures by postal codes (yearly) · EJS50: Price indices for selected commercial properties and building sites (quarterly)

8.7 Micro-data access (S.10.4)

Access to Statistics Denmarks' register for sales of real properties is available via Data for research. The basic material since 1992 is stored in Statistics Denmark. For particular extract of individual properties, we refer to the data distributors on http://www.OIS.DK.

8.8 Other (S.10.5)

It is possible to buy service task, with more informations than in the News from Statistics Denmark or in the StatBank.

8.9 Confidentiality - policy (S.7.1)

Data Privacy Policy in Statistics Denmark.

8.10 Confidentiality - data treatment (S.7.2)

The statistics is not published on such a detailed level that individual properties can be identified.

8.11 Documentation on methodology (S.10.6)

No further documents are available in English.

8.12 Quality documentation

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

9 Contact

The administrative placement of this statistics is in the division of Prices and Consumption. The person responsible is Jakob Holmgaard, tel. +45 39 17 31 24, e-mail: jho@dst.dk

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