

**Documentation of statistics for  
Producer price index for construction of dwellings 2021**

## 1 Introduction

The purpose of this statistic is to show trends in prices in the first stage of commercial transactions for the construction, i.e. the producer price incl. direct construction costs and profits and excl. VAT, cost of land and other costs not directly linked to the construction. This statistic have been compiled since 2019 with indices dating back to 2015.

## 2 Statistical presentation

The Producer Price Index for Construction of Dwellings is a quarterly measurement of prices related to the construction of new dwellings relating to the first commercial transaction, i.e. the transaction carried out between the construction company and the builder. The index describes the price of constructing dwelling, i.e. the price a household or a developer pays the construction company, e.g. a producer of turn-key houses, for the construction of a dwelling.

### 2.1 Data description

The purpose of the Producer Price Index for Construction of Dwellings is to describe the price development on the constructions of dwellings in Denmark. Currently, solely one-family houses are included in the calculations. The price concept is the price of a newly built dwelling incl. the producer's direct constructions costs and profits, excl. the cost of land, taxes and further costs directly related to the construction of the dwelling. Thus, the statistics contains information on producer prices for newly built dwellings. The index is published every quarter and both price indices and the quarterly percent development are given.

### 2.2 Classification system

Currently, the statistics covers the construction of one-family houses. A one-family house is defined by the classification of use 120 in the Danish Buildings and Dwellings Register. The classification describes the main use of a building. thus, the index covers the production of dwellings carried out by companies producing turn-key houses belonging to the 41,20.00 (Construction of buildings) in the Danish Business Register.

### 2.3 Sector coverage

Construction sector entities engaged in construction of dwellings, i.e. a part of the construction industry.

### 2.4 Statistical concepts and definitions

Producer price: The price of a produced commodity incl. the producer's direct production costs and profits and excl. VAT and additional costs not directly related to the production of the commodity.

Hedonic regression: Methodology where the price of a good is modeled as a function of the characteristics of that same good.

### 2.5 Statistical unit

Prices.

## **2.6 Statistical population**

The target population is all newly constructed dwellings in Denmark.

## **2.7 Reference area**

Denmark.

## **2.8 Time coverage**

2015-.

## **2.9 Base period**

2015 = 100.

## **2.10 Unit of measure**

Index and percentage changes.

## **2.11 Reference period**

The statistics corresponds to the quarter. The indices are related to dwellings that have been completed within the quarter.

## **2.12 Frequency of dissemination**

Quarterly.

## **2.13 Legal acts and other agreements**

The legal authority to collect data is provided by the Act on Statistics Denmark, section 8, as subsequently amended (most recently by Act no. 610 of 30 May 2018).

## **2.14 Cost and burden**

The response burden has not yet been calculated for this statistics, but it is assumed that the reporting units spend less than one hour on their responses. Over time, the response burden has been reduced significantly as Statistics Denmark obtain as much information as possible from the Danish Buildings and Dwellings Register (BBR).

## 2.15 Comment

For more information please see (<https://www.dst.dk/en/Statistik/emner/priser-og-forbrug/erhvervslivets-priser/producentprisindeks-for-byggeri-og-anlaeg>) or contact Statistics Denmark.

## 3 Statistical processing

Every quarter approximately 500-600 prices are collected from a sample of relevant construction companies in Denmark. Prices are collected through an electronic reporting form via [Business in Denmark](#). The collected prices are merged with relevant information from the Danish Buildings and Dwellings Register. The index is calculated by use of a hedonic regression where different information (characteristics of the single dwelling) is used.

### 3.1 Source data

The Producer Price Index for Construction of Dwellings is calculated on the basis of prices, reported by selected companies engaged in construction of one-family houses. The sample is selected using a top-down approach by turnover. The collected prices cover 30 to 40 pct. of the completed one-family houses in Denmark every quarter. Furthermore, the price information is enriched with information from the Danish Buildings and Dwellings Register. Currently, only data on one-family houses is collected.

### 3.2 Frequency of data collection

Quarterly.

### 3.3 Data collection

The prices are collected through an electronic reporting form, which is sent to the relevant contact within the selected companies. All further information is gathered from the Danish Buildings and Dwellings Register.

### 3.4 Data validation

The first validation of the price data happens when prices arrive to Statistics Denmark. Here they are tested for unusual developments and missing address information. Following this data is merged with administrative data. Unmatched data is treated manually and relevant information is applied to these observations. Also prices in relation to size of dwellings are checked.

### 3.5 Data compilation

The Producer Price Index for Construction of Dwellings is compiled by merging price information from construction companies specializing in constructions of one-family houses with information from the Danish Buildings and Dwellings Register (size, number of rooms, number of bathrooms, roofing materials etc.).

### **3.6 Adjustment**

No adjustments are made.

## **4 Relevance**

The Producer Price Index for Construction of Dwellings is a business cycle indicator which is used to analyze economic developments. Furthermore, the index is used a deflator in the Danish National Accounts for constant price calculations.

### **4.1 User Needs**

The Producer Price Index for Construction of Dwellings is a business cycle indicator which is used to analyze economic developments. Furthermore, the index is used a deflator in the Danish National Accounts for constant price calculations.

### **4.2 User Satisfaction**

The Producer Price Index for Construction of Dwellings is on the agenda at all the meetings in the committee for statistics on buildings and construction with the aim to continuous improvement of the statistics.

### **4.3 Data completeness rate**

Ideally, the statistics reflects the development of producer prices of all newly constructed dwellings in Denmark. However, at this point, Statistics Denmark only has access to data for newly built one-family houses. Thus, the construction of multi-family houses is not included. Furthermore, data is not collected for special construction.

## **5 Accuracy and reliability**

The sample is selected using a top down approach, i.e. the businesses with the largest turnover are selected for the sample to achieve the highest coverage possible with as few reporting units as possible. As the sample is not selected randomly the sample error cannot estimated, however, overall the index is assessed to be of high quality. Only final statistics are published.

### **5.1 Overall accuracy**

The statistics is currently based on around 2.000 reported prices each year, which makes up around 40 per cent of the number of completed one-family houses each year. The prices are reported from a small number of businesses specialized in building turn-key one-family houses. The businesses are selected using a top-down approach, i.e. the businesses with the largest turnover are selected for the sample to achieve the highest coverage possible with as few reporting units as possible. The prices from these businesses, thus, represent all newly completed one-family houses, regardless of whether they are standard houses or one of kind. In spite of this, the accuracy is assessed to be acceptable, as the calculation of the index is performed using a hedonic regression approach. The information needed to differentiate between standard and one of a kind houses are not available, thus, a mix of prices on standard houses and one of a kind houses could add some error to the statistics. Non-response is minimal and is not regarded as a significant source of error. It is assessed that the price development of the sample is representative of the price development in the population. Errors can furthermore arise from errors in the reported prices and from errors in the administrative data. Data is thoroughly examined for these types of errors before they are included in the calculations.

### **5.2 Sampling error**

The sample is selected top-down to achieve as high turnover coverage as possible. The sample is therefore not a random sample and it is not possible to estimate the overall size of the sampling error.

### **5.3 Non-sampling error**

The statistics is based on 30 to 40 percent of the completed one-family houses i Denmark, which is assessed to be a sufficient market coverage. Over-coverage is avoided by only including houses of the correct type which have been completed within the relevant period of time.

When the construction companies report prices and the associated addresses on newly completed one-family houses errors may occur. Therefore, the reported prices are checked thoroughly and the information is compared to the Danish Buildings and Dwellings Register (BBR). Furthermore, error may occur in the BBR, however, this type of error is expected to have very little influence on the statistics. A small number of the reported prices for a given period will not included in the calculations if the associated information cannot be found in the BBR. Besides from this, no issues with non-response have occurred.

The price development is calculated using hedonic regression which implies some assumptions with regards to which characteristics influence the price of the construction of a one-family house. The characteristics used in the calculation are the following: · Floor area · Roof · Number of rooms · Number of bathrooms · Number of floors · Geography · Construction company Information on quality (eg. marble vs. ceramic tiles) cannot be obtained from the administrative registers, and thus, to get this information it must be reported from the construction companies. This would, however, place an unfair burden on the businesses, which is why the information is not included in the calculations. This introduces risk of error, as a price development might be driven by changes in quality. However, it is expected that the quality of houses built in two consecutive quarters will have the same quality on average.

#### **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**

An overall quality assessment rests upon a combination of coverage, number reporting businesses and prices in the sample and the quality of the collected prices and the price methods used. The sample is selected in order to cover as large a share of the turnover in the industry as possible. Since the statistics was established in 2015, prices for 30 to 40 per cent of the completed one-family houses each year. The coverage varies according to the combined market share of the reporting companies that has been increasing throughout the time period. Prices are matched with information from the Buildings and Dwellings Register, e.g. floor area, number of bathrooms and roofing materials. This information is used in the calculation of the index using a hedonic regression - a method recommended by Eurostat for calculating price indices for heterogeneous products/services. The quality is monitored continuously and efforts are put in where the quality can be improved. The quality work e.g. consists of supplementing the sample.

#### **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**

No revision.

### **6 Timeliness and punctuality**

These statistics are published quarterly, approx. 3-4 month after the end of the reference period.

#### **6.1 Timeliness and time lag - final results**

Production time is approx. 90-100 days. 3-4 month after the reference period the statistic is published.

## **6.2 Punctuality**

No delays recorded.

## **7 Comparability**

The statistic follows international standards and is therefore comparable with similar statistics from other countries.

### **7.1 Comparability - geographical**

The statistic follows international standards and is therefore comparable with similar statistics from other countries.

### **7.2 Comparability over time**

The statistic is comparable over time.

### **7.3 Coherence - cross domain**

Other statistics on one-family houses are published by Statistics Denmark - that is number of one-family houses (existing and new).

### **7.4 Coherence - internal**

The index is produced used reported prices and connected addresses for newly constructed one-family houses. To ensure that only one-family houses is included in the calculation the reported addresses are merged with information from the administrative register on dwellings (BBR).

## **8 Accessibility and clarity**

The statistics is published in News from Statistics Denmark and is available from Statbank Denmark (table PRIS90).

### **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 Calendar can be accessed on our English website: [Release Calendar](#).

### **8.3 User access**

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published.



#### **8.4 News release**

Once a year (in April) this statistics is published in News from Statistics Denmark together with figures for Producer Price Index for Refurbishment and Maintenance.

#### **8.5 Publications**

None.

#### **8.6 On-line database**

The statistics are published in the StatBank in the following table:

- [PRIS90](#): Producer price index for construction of dwellings by type of dwelling, unit and time

#### **8.7 Micro-data access**

Access to Micro-data is not possible.

#### **8.8 Other**

None.

#### **8.9 Confidentiality - policy**

The confidentiality policy of Statistics Denmark (<http://www.dst.dk/ext/292786082/o/formid/Datafortrolighedspolitik-i-Danmarks-Statistik--pdf>) stipulated the rules and procedures which Statistics Denmark apply when working with reported information from companies to be used in the production of statistics.

#### **8.10 Confidentiality - data treatment**

All data are handled confidential. For the Producer Price Index for Construction of Dwellings only aggregated index is published, thus discretion does not apply to this statistics.

#### **8.11 Documentation on methodology**

There is no separate documentation on methodology for this statistics.

#### **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 are in the division of Prices and Consumption. The person responsible is André Pedersen Ystehede, tel. +45 39 17 31 63, e-mail [apy@dst.dk](mailto:apy@dst.dk).

**9.1 Contact organisation**

Statistics Denmark

**9.2 Contact organisation unit**

Prices and Consumption, Economic Statistics

**9.3 Contact name**

André Pedersen Ystehede

**9.4 Contact person function**

Responsible for the statistics

**9.5 Contact mail address**

Sejrøgade 11, 2100 Copenhagen

**9.6 Contact email address**

apy@dst.dk

**9.7 Contact phone number**

+45 39 17 31 63

**9.8 Contact fax number**

+45 39 17 39 99