Documentation of statistics for Consumer Price Index 2021

1 Introduction

The purpose of the consumer price index is to measure the development of the prices charged to consumers for goods and services bought by private households in Denmark. The consumer price index has been calculated since 1914, but there are estimated figures for the development in consumer prices back to 1872. From January 1967 the index has been calculated on a monthly basis.

2 Statistical presentation

The consumer price index shows the development of prices for goods and services bought by private households in Denmark. Thus, the index also covers foreign households' consumption expenditure in Denmark, but not Danish households' consumption expenditure abroad. The index shows the monthly changes in the costs of buying a fixed basket of goods, the composition of which is made up in accordance with the households' consumption of goods and services. The consumer price indices divided by group of households show the price development for different households.

The price indices for April, May, June, July, August, September, October, November, December 2020 and January, February, March, April, May and June 2021 are more uncertain than usual, as the non-response rate has been significantly larger than normal and some businesses have been shut down due to Covid-19.

2.1 Data description

The consumer price index shows the development of prices for goods and services bought by private households in Denmark. Thus, the index also covers foreign households' consumption expenditure in Denmark, but not Danish households' consumption expenditure abroad. The index shows the monthly changes in the costs of buying a fixed basket of goods, the composition of which is made up in accordance with the households' consumption of goods and services.

The consumer price index can best be characterized as a fixed weight index of a Laspeyres-type. The prices that are included in the consumer price index are the prices paid by the consumers, i.e. including VAT and taxes and after deduction of any subsidies. The only exception to this is rent payments where the total rent, i.e. the share of rent payments plus any housing benefits, is included.

The weights are calculated on the basis of data from the national accounts on final consumption expenditure of households in Denmark, distributed among 70 commodity groups. For each of these, a further division is made by using the detailed information on consumption expenditure of Danish households from the Household Budget Survey. The weights were last adjusted in connection with calculating the index for January 2021 and are based on estimated private consumption expenditure in 2020. The weights are updated on a yearly basis. Up till December 2000 the index was calculated with 1980=100 as the base year. From January 2001 until December 2015 the index was calculated with 2000=100 as the base year. As from January 2016 the index is calculated with 2015=100.

The consumer price indices divided by group of households have been published since December 2016 and have been calculated back to 2006. These indices have 2015=100.

2.2 Classification system

ECOICOP (European Classification of Individual Consumption According to Purpose) is an European version of the international classification of consumption goods and services, COICOP. ECOICOP is more detailed than COICOP. The description of the ECOICOP Group 12.6.2.1 (Charges by banks) has been changed in the statbank in relation to the official description to emphasize that interest payments and fees relating to the purchase and ownership of owner-occupied housing are not covered in the consumer price index.

2.3 Sector coverage

The household sectors purchase of goods and services in Denmark and foreigners purchase of goods and services in Denmark.

2.4 Statistical concepts and definitions

Consumer price: The price paid by the consumer, i.e. including VAT and taxes and after deduction of any subsidies.

Price index: Explanations of other concepts regarding index calculations can be found in the publication (in Danish) Index calculations.

2.5 Statistical unit

Groups of consumer goods and services. The concrete division of goods and services can be seen in the document "Vægtgrundlag" at the following link: Groups of goods and services.

The consumer price indices divided by group of households have been divided across some of the same household groups that are being used in the Households Budget Survey.

2.6 Statistical population

The population consists of the goods and services, which are included in the consumption expenditure of domestic households and private foreign visitors to Denmark.

2.7 Reference area

Denmark.

2.8 Time coverage

2000-

2.9 Base period

The consumer price index is published with 2015=100.

The consumer price indices divided by group of households is published with December 2005=100.

2.10 Unit of measure

Index values and percentage changes.

2.11 Reference period

The prices are collected monthly during the period from 7th to 15th.

2.12 Frequency of dissemination

The consumer price index is published monthly.

2.13 Legal acts and other agreements

The consumer price index is compiled in pursuance of section 8 of the Act on Statistics Denmark and Consolidated Act on calculation of an index of net retail prices.

There are no European Union regulations relating to the consumer price index.

2.14 Cost and burden

The total response burden imposed on the reporting of data for the consumer price index, the index of net retail prices and the European Union's harmonized consumer price index is estimated at 2078 hours or 0.578 mill. Dkr.

2.15 Comment

More information is available by contacting Prices and Consumption, Statistics Denmark.

3 Statistical processing

The consumer price index is calculated on the basis of 23,000 prices collected from approx. 1,600 shops, companies and institutions throughout Denmark. Most prices are by far collected monthly. The data material received is examined for errors, both by computer (using the so called HB-method) and manually. The different goods and services, which are included in the consumer price index, are first grouped according to approx. 500 elementary aggregates for which elementary aggregate indices are calculated. The elementary aggregate indices are weighted together into sub-indices that are in turn aggregated into the total consumer price index. In calculating a price index it is assumed that the baskets of goods that are compared are identical, also with respect to the quality of the goods. Mainly indirect quality adjustment methods are being applied in the consumer price index in connection with changes in the sample.

3.1 Source data

The consumer price index is calculated on the basis of 23,000 prices collected from approx. 1,600 shops, companies and institutions throughout Denmark. The prices are collected by questionnaires or by means of price collectors who visit the individual shops. Prices on food and beverages and household articles are to a large extent covered by the use of scanner data from supermarket chains. Prices are also obtained via the Internet. Most prices are by far collected monthly. For goods and services, where prices typically change less frequently, prices are collected more rarely, for instance quarterly or biannually. The index weights for the detailed indices (elementary aggregate indices) are calculated on the basis of data from the national accounts on final consumption expenditure of households in Denmark, supplemented by detailed information from the Household Budget Survey.

3.2 Frequency of data collection

Most prices are by far collected monthly. For goods and services, where prices typically change less frequently, prices are collected more rarely, for instance quarterly or biannually.

3.3 Data collection

For clothing etc., prices are collected by price collectors who visit the individual shops. Food and beverages and household items are to a large extent covered by the use of scanner data from supermarket chains. For the remaining groups of goods and services, prices are mainly obtained from the shops via mailed forms with the information requested. Finally, Statistics Denmark obtains information on prices concerning a number of selected goods and services by telephone or via the Internet.

3.4 Data validation

The data material received is examined for errors, both by computer (using the so called HB-method) and manually.

3.5 Data compilation

The different goods and services, which are included in the consumer price index, are first grouped according to approx. 500 elementary aggregates for which elementary aggregate indices are calculated. The elementary aggregate indices are mainly calculated as geometric indices. The elementary aggregate indices are weighted together into sub-indices that are in turn aggregated into the total consumer price index.

3.6 Adjustment

In calculating a price index it is assumed that the baskets of goods that are compared are identical, also with respect to the quality of the goods. Consequently, in the case of changes in quality the prices should, in principle, be adjusted for this. Mainly indirect quality adjustment methods are being applied in the consumer price index in connection with changes in the sample. This means that the quality difference between a good leaving and entering the sample is not calculated directly. The price development of comparable goods in the sample is instead calculated, and it is assumed that the price development between the good leaving and entering the sample is equal to the calculated. A remaining price difference between the good leaving and entering the sample is implicitly assumed to be due to a quality difference and is not included in the calculation of the price index.

As the value of the actual changes in quality is not known, it is naturally difficult to calculate estimates for a possible bias, due to the chosen methods of quality adjustment.

4 Relevance

The consumer price index is generally viewed as a reliable statistic based on the views of users.

Important users are among others the Ministry of Finance, The Ministry of Economic Affairs and the Interior, The Danish Central Bank and private banks and other financial organizations.

4.1 User Needs

The consumer price index is used as a measurement of inflation and is a key economic figure, which is used by a large number of public and private companies and interested members of the general public in connection with monitoring economic developments. Furthermore, the index is used for regulating (indexation) contracts, pensions, wages and salaries, rents, etc. The consumer price index is also used for indexation of certain Danish government bonds.

4.2 User Satisfaction

Feedback is given at a yearly meeting held with the most important users.

User satisfaction surveys have not been carried out.

4.3 Data completeness rate

Not relevant for these statistics.

5 Accuracy and reliability

No calculation has been made of the uncertainty connected with sampling in the consumer price index as the sample is not randomly drawn, but the quality of the consumer price index is accessed to be high.

In addition to the "general" uncertainty connected with sampling, there are a number of sources of potential bias in the consumer price index. One source is the consumers substitution between goods and shops and another source is changes in the sample (se chapter regarding "Non-sampling error").

5.1 Overall accuracy

The overall reliability of the consumer price index is estimated to be high based on the views of users.

The accuracy of the total consumer price index is judged by Statistics Denmark to be within plus/minus 0,1 index points.

5.2 Sampling error

No calculation has been made of the uncertainty connected with sampling in the consumer price index as the sample is not randomly drawn.

The price indices for April, May, June, July, August, September, October, November, December 2020 and January, February, March, April, May and June 2021 are more uncertain than usual, as the non-response-rate has been significantly higher than normal and some industries have been completely shut down due to Covid-19. Since July 2021 all industries are once again open and included in the price index. Usually, the non-response-rate of price observations is below 0.1 per cent in a month, but in April 2020, the non-response-rate is just under 27 per cent of the prices in the sample. In May 2020 the non-response-rate is just above 11 per cent and in June and July 3.5 per cent. In August 2020 the non-response-rate is just above 2.4 per cent. In September 2020 the non-response-rate is just above 3.8 per cent and in October 1.9 per cent. In November 2020 the non-response-rate is just below 4.2 per cent. In December 2020 the non-response-rate is just below 2.7 per cent. In January 2021 the non-response-rate is around 15 per cent. In February 2021 the non-response-rate is around 15 per cent. In March 2021 the non-response-rate is around 10,9 per cent. In April 2021 the non-response-rate is around 8,9 per cent. In May 2021 the non-response-rate is around 3.0 per cent. In June 2021 the non-response-rate is around 1.7 per cent. This includes a number of industries where the non-response-rate is 100 per cent, as the industries have been completely closed down during the April, May, June, July, August, September, October, November, December 2020 and January, February, March, April, May and/or June 2021 price collection periods. On the topic page is the spreadsheet [Manglende prisobservationer i FPI og NPI](#), which shows the non-response-rate in broken down by elementary aggregate indices. If you take into account the weight of the individual product groups (elementary aggregate indices) in the product basket behind the total price index, then just over 16 per cent of the goods basket behind the price index in April 2020 has been hit by more than 50 per cent non-response-rate in price observations or have been closed down completely, which is why the price trend here has been estimated. This is estimated to have an impact on the uncertainty of the monthly increase in the total price index in April 2020 by up to plus minus 0.2 percentage points. In May 2020 around 9 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in May 2020 by up to plus minus 0.15 percentage points. In June 2020 around 2 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in June 2020 by up to plus minus 0.05 percentage points. In July 2020 around 1.5 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in July 2020

by up to plus minus 0.1 percentage points. In August 2020 around 1.5 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in August 2020 by up to plus minus 0.04 percentage points. In September 2020 around 1.5 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in September 2020 by up to plus minus 0.03 percentage points. In October 2020 around 1.5 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in October 2020 by up to plus minus 0.03 percentage points. In November 2020 around 2 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in November 2020 by up to plus minus 0.03 percentage points. In December 2020 around 2 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in December 2020 by up to plus minus 0.05 percentage points. In January 2021 around 9 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in January 2021 by up to plus minus 0.1 percentage points. In February 2021 around 9 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in February 2021 by up to plus minus 0.09 percentage points. In March 2021 around 9 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in March 2021 by up to plus minus 0.08 percentage points. In April 2021 around 6,8 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in April 2021 by up to plus minus 0.08 percentage points. In May 2021 around 2.2 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in May 2021 by up to plus minus 0.06 percentage points. In June 2021 around 1.5 per cent of the basket has been estimated leading to a uncertainty of the monthly increase in the total price index in June 2021 by up to plus minus 0.01 percentage points. Read more on the [Subject page] (https://www.dst.dk/doku/forbrugerprisindeks) (in Danish).

The price indices for March 2020 are marginally more uncertain than usual, as the non-response rate has been 3.2 per cent and therefore slightly larger than normal.

Outlets in the sample is to a large extent selected based on turnover so that firms with a high turnover are being preferred compared to firms with a low turnover (cut-off sampling). Representative goods for the different goods and services are being selected according to expenditure measured by e.g. the Household Budget Survey.

The particular goods in the sample including brand and product weight are being selected by the price collector or data provider.

5.3 Non-sampling error

In addition to the "general" uncertainty connected with sampling, there are a number of sources of potential bias in the consumer price index, which can be grouped as follows:

Substitution between goods: Bias due to substitution between goods is a result of the fact that for different reasons (changes in income and in relative prices or preferences), consumers substitute between different goods, although an unchanged composition of consumption is assumed in the calculation of the price index. The consumer price index is calculated as the weighted arithmetic average of the most detailed price indices (elementary aggregate indices) with their respective budget shares used as weights. At this level of the index calculation no allowances are therefore made for the consumers' substitution between different groups of goods and services (elementary aggregates). However, the elementary aggregate indices are mainly calculated as geometric indices. Thus, it is assumed that the consumers' budget shares remain unchanged. For these groups a certain substitution has thus been recognized in the index.

Substitution between shops: This type of bias arises when consumers for the same commodity change from shops with high prices to shops with lower prices. The consumer price index is calculated monthly on the basis of price information from the same shops. If, e.g. greater shares of the consumers' expenditure from July until August is accounted for by discount shops with lower prices, this will not in itself have an impact on the index.

Changes in quality: In calculating a price index it is assumed that the baskets of goods that are compared are identical, also with respect to the quality of the goods. Consequently, in the case of changes in quality the prices should, in principle, be adjusted for this. As the value of the actual changes in quality is not known, it is naturally difficult to calculate exact values for bias, due to lack of quality adjustment.

New commodities: The sample for the consumer price index is continuously updated, but for practical reasons often with a certain time lag. This means that new products are frequently not included in the compilation of the index when they are first introduced on the market, and not until prices have been available for two months in succession. Furthermore, at the beginning of a product's lifetime it is often impossible to obtain any information about expenditure from e.g. the Household Budget Survey. Finally, a great deal of uncertainty is associated with the task of defining whether it is actually a new product or just improved versions/varieties of already existing products.

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

The statistical uncertainty is not calculated, but the quality of the consumer price index is accessed to be high based on the views of users.

The level of quality is among other things dependent on the size and composition of the sample, the methods used for quality adjustments in connection with changes in the sample and the data editing of the collected data.

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

Only final figures are published.

6 Timeliness and punctuality

The consumer price index is published on the 10th or the first working day thereafter, following the month in which the data was collected.

The statistics are published without delay in relation to the scheduled date.

The consumer price indices divided by group of households are published once a year.

6.1 Timeliness and time lag - final results

The consumer price index is published on the 10th or the first working day thereafter, following the month in which the data was collected.

The consumer price indices divided by group of households are published once a year.

6.2 Punctuality

The statistics are published without delay in relation to the scheduled date.

7 Comparability

The consumer price index is related to the European Union harmonized consumer price index (HICP) and to the index of net retail prices. From January 2001, the only difference between the national consumer price index and the HICP is the coverage of goods and services, as owner-occupied dwellings is only recorded in the consumer price index and not in the HICP. The consumer price index is also related to the index of net retail prices. The two indices comprise the same groups of goods and services and are calculated according to the same methodology. Consequently, the only difference between the two indices is the price concept used, as indirect taxes and VAT are subtracted in the index of net retail prices, and the weighting.

7.1 Comparability - geographical

The consumer price index is related to the European Union harmonized consumer price index (HICP).

From January 2001, the only difference between the national consumer price index and the HICP is the coverage of goods and services, as owner-occupied dwellings is only recorded in the consumer price index and not in the HICP.

From January till December 2000, the only difference between the national consumer price index and the HICP is that both owner-occupied dwellings and private hospitals are only recorded in the consumer price index and not in the HICP. Before January 2000, there are differences in calculation and methodology between the two indices as well as several differences as regards their coverage of goods and services.

7.2 Comparability over time

In principle, the statistics are fully comparable over time. When making comparisons over longer periods, however, account should be taken of the fact that due to the weight changes and the continuous update of the sample, it is not the same basket of goods and services that is compared as the sample is continuously updated to reflect the actual consumption pattern.

7.3 Coherence - cross domain

The consumer price index is related to the European Union harmonised consumer price index (HICP) and to the index of net retail prices.

From January 2001, the only difference between the national consumer price index and the HICP is the coverage of goods and services, as owner-occupied dwellings is only recorded in the consumer price index and not in the HICP.

From January till December 2000, the only difference between the national consumer price index and the HICP is that both owner-occupied dwellings and private hospitals are only recorded in the consumer price index and not in the HICP. Before January 2000, there are differences in calculation and methodology between the two indices as well as several differences as regards their coverage of goods and services.

The consumer price index is also related to the index of net retail prices. The two indices comprise the same groups of goods and services and are calculated according to the same methodology. Consequently, the only difference between the two indices is the price concept used, as indirect taxes and VAT are subtracted in the index of net retail prices, and the weighting.

7.4 Coherence - internal

The data are consistent.

8 Accessibility and clarity

These statistics are published monthly in a Danish press release and in the StatBank under Consumer Price Index.

Statistics Denmark
Sejrøgade 11
DK 2100 København Ø

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 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

These statistics are published monthly in a Danish press release.

8.5 Publications

Publications.

8.6 On-line database

These statistics are published in the StatBank under Consumer Price Index in the following tables:

- PRIS111: Consumer price index (2015=100) by commodity group and unit
- PRIS112: Consumer price index (2015=100) by main figures
- PRIS8: Consumer price index, annual average (1900=100) by type
- PRIS9: Consumer price index, annual rate of change (inflation) (1900=100) by type
- PRIS113: Consumer price index (2015=100) by type
- PRIS201: Consumer price indices by group of households (2015=100) by commodity group and group of households

Discontinued tables:

- PRIS6: Consumer price index (2000=100) by commodity group and unit
- PRIS61: Consumer price index (2000=100) by main figures
- PRIS12: Consumer price index (2000=100) by type
- PRIS14: Consumer price index, rate of change last 12 months (2000=100) by type
- PRIS1: Consumer price index (1980=100) by commodity group
- PRIS200: Consumer price indices by group of households (December 2005=100) by commodity group and group of households

8.7 Micro-data access

Access to Micro-data, where the individual firms are not identifiable, may be granted on ad hoc basis.

8.8 Other

Access to not published detailed elementary aggregate indices may be granted on request.

The consumer price index is used for deflating figures for household expenditure in the National Accounts and deflating the Retail trade index.

8.9 Confidentiality - policy

Statistics Denmark's Data Confidentiality Policy is a set of rules and guidelines applied by Statistics Denmark when processing the large volumes of data about the Danes and Danish enterprises, which is the foundation for the production of statistics.

8.10 Confidentiality - data treatment

It is not necessary to apply confidentiality at the chosen level of publication.

8.11 Documentation on methodology

Documentation on methodology is only available in Danish.

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 Martin Birger Larsen, tel. +45 3917 3459, e-mail: mbl@dst.dk

9.1 Contact organisation

Statistics Denmark

9.2 Contact organisation unit

Prices and Consumption, Economic Statistics

9.3 Contact name

Martin Birger Larsen

9.4 Contact person function

Responsible for the statistics

9.5 Contact mail address

Sejrøgade 11, 2100 Copenhagen

9.6 Contact email address

mbl@dst.dk

9.7 Contact phone number

+45 3917 3459

9.8 Contact fax number

+45 39 17 39 99