STATISTICS DENMARK

Documentation of statistics for Producer and Import Price Index for Commodities 2019

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1 Introduction

These statistics show the trends in prices relating to the first commercial transaction of each commodity. The statistics can me traced back to 1876 and have been produced with variations since then. The producer price index divided by industries have been calculated since year 2000, and the import price index divided by industries have been calculated since 2005. Price index for domestic supply dates back to 1981.

2 Statistical presentation

The Producer and import price index for commodities indicates trends in prices relating to the first commercial transaction for commodities that are produced in Denmark or imported to Denmark

2.1 Data description

The total *producer and import price index for commodities* contains price information on:

1. Imported commodities
2. Commodities produced for domestic markets
3. Commodities produced for export

The Producer price index for commodities indicates trends in prices relating to the first commercial transaction. The calculation is based on number 2 and 3. A range of sub-indices show distributions by Industry.

Import price index for commodities indicates trends in prices relating to the first commercial transaction. The calculation is based on number 1. A range of sub-indices show distributions by Industry.

The Price index for domestic supply indicates trends in the prices relating to the first commercial transaction. The calculation is based on number 1 and 2. A range of sub-indices show distribution by commodity.

2.2 Classification system

The producer- and import price index for commodities is divided by Industry following Danish Industrial Classifications 2007 (DB07). DB07 is based on NACE rev. 2.

The Price index for domestic supply is divided by commodities following the Combined Nomenclature (CN) and The Harmonized Commodity Description and Coding System (HS). HS is the international tariff classification and developed by the World Customs Organization (WCO).

HS is a 6-digit hierarchically structured commodity classification. CN is the EU classification of tariffs and foreign trade statistics. CN is a subdivision of HS. The prices collected for the producer- and import price index are collected according to this commodity classification.

2.3 Sector coverage

The statistic is subject to the European regulation for short-term statistics. In concordance with the regulation the statistic is comprised of all imported and domestic produced commodities belonging to the industries B to E in the DB07 nomenclature. Additionally, prices are also gathered belonging to industry A for *The Price index for domestic supply*.

- A: Agriculture, forestry and fishing
- B: Mining and quarrying
- C: Manufacturing
- D: Electricity, gas, steam and air conditioning supply
- E: Water supply; sewerage, waste management and remediation activities

The Producer- and import price index for commodities is comprised of industry B to E.

The Price index for domestic supply is comprised of industry A to C.

2.4 Statistical concepts and definitions

Producer Price: The prices used for the index are actual prices, which means that the prices must include all possible discounts. Therefore list prices do not apply unless the prices never include discounts. A distinction is made between the prices of imported commodities and the prices of commodities for the domestic market;

1. Imported commodities: Actual transaction prices (in some cases transfer prices) c.i.f. excluding all duties and taxes on the goods as far as possible on the 15th of the month.
2. Danish commodities for the domestic marked: Actual transaction price (in some cases transfer prices) ex producer excluding VAT and excise duties as far as possible on the 15th of the month.

Domestic market price: Price of Danish produced commodity sold for the domestic market.

Non-domestic market price: Price of Danish produced commodity sold for export.

Import price: Price of imported commodity.

2.5 Statistical unit

The statistical units in the *producer and import price index for commodities* are companies, where each company is determined by the legal entity. In Statistics Denmark's Statistical Business Register, the legal entities are determined by their VAT number. In some cases, the principle is abandoned. Several companies can be combined into one unit, e.g. if they have centralized administration or in the case of franchises.

2.6 Statistical population

The population covers all commodities that are imported or produced in Denmark for the domestic market for the various industries and commodity groups.

2.7 Reference area

Denmark.

2.8 Time coverage

The Producer price index for commodities has been published since January 2000. *Import price index for commodities* has been published since 2005. *The Price index for domestic supply* has been published since 1981.

2.9 Base period

2015=100

2.10 Unit of measure

Index.

2.11 Reference period

The firms are to report the prices, which were in force on the 15th of the month in so far it is possible.

2.12 Frequency of dissemination

Monthly.

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 may 30th, 2018).

Council Regulation (EC) No 1165/98 of 19 May 1998 concerning short-term statistics (EFT L 162 05.06.98).

2.14 Cost and burden

The response burden is estimated at 1,148 DKK million.

2.15 Comment

For more information please contact Statistics Denmark at Producer- and Import price index for commodities.

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STATISTICS DENMARK

3 Statistical processing

The *producer- and import price index for commodities* is based on approx. 6400 prices, reported by selected producers and importers in Denmark. Approx. 3500 prices are used for calculating the *producer price index*, approx. 2900 prices are used for calculating the *import price index* and approx. 4900 prices are used for calculating the *price index for domestic supply*. The prices are collected every month through an electronic questionnaire and validated.

The validated data are then aggregated in a hierarchical system to calculate the *producer- and import price indices for commodities*.

3.1 Source data

The Producer- and import price index for commodities is calculated on the basis of about 6400 prices, reported by selected producers and importers in Denmark. Of these, about 3500 prices are used for calculating the *producer price index*, about 2900 prices are used for calculating the *import price index* and about 4900 prices are used for calculating the *price index for domestic supply*.

The weights are based on national accounts estimates of Danish companies' turnover values.

3.2 Frequency of data collection

Monthly.

3.3 Data collection

Prices are collected through an electronic reporting form, which is sent out to selected companies.

3.4 Data validation

The first validation of price data happens when prices arrive to Statistics Denmark. Here they are auto tested for unusual developments. The prices that do not pass a predetermined threshold value will be checked manually by the staff and accepted only if the firms can verify the change. When all prices are received, the system generates a list that includes all price changes and a measure of how these affects the elementary aggregates. The last validation is a visual inspection of all index tables.

STATISTICS DENMARK

3.5 Data compilation

The *Producer and import price indices* are calculated in a hierarchical system where the first calculation is made for the most detailed group of commodities, i.e. the elementary aggregates. These indices are calculated as geometric Jevons indices. The detailed elementary aggregates are subsequently weighted together for sub-indices and in the end for the total producer and import price indices. These are calculated as arithmetic Laspeyres indices.

Weights: Weights are assigned to every detailed group of commodities and used for weighting the base indices together for sub-indicies and for the total Price index for domestic supply. The weights, which are based on the supply and use tables from national accounts for 2010, are equal to the sum of the import values and production values for the home market excluding VAT and excise duties. This ensures that the sample reflects the population.

Estimates for non-response: Non-response is negligible. If it should happen for any significant goods, imputation techniques are used. In other cases the prices are regarded as unchanged.

3.6 Adjustment

There are no corrections of data beyond what has already been described during data validation and data processing.

4 Relevance

The *Producer and import price index* is a key business cycle indicator which is used by public and private decision-makers to analyze the socioeconomic development.

4.1 User Needs

The Producer- and Import price index for commodities is a key business cycle indicator which is used by public and private decision-makers to analyze the socioeconomic development.

Deflator The index is used to adjust other economic time series for price changes:

- Fixed price calculations in the national accounts statistics, i.e. calculation of the actual economic development in Denmark.
- Fixed price calculations in the industry statistics.

Contract adjustment The index is also used by businesses to adjust contracts.

4.2 User Satisfaction

The primary user of this statistic is the Danish National Accounts. For this reason, the statistics main objective to act as a deflator for fixed price calculations. This has implications with regards to the choice of the sample, as the ambition is to cover as much industry turnover as possible, rather than reflect typical price developments. There is an ongoing dialogue with national accounts, in terms of quality and user satisfaction.

There are also external decision makers who use the statistic for contractual regulations, as well as to monitor price developments in the published indices. Statistics Denmark is on a regular basis in contact with these users, and attempt to meet any requests to the extent which it is possible.

Once a year Statistics Denmark holds a committee meeting with users of price indices. The Meetings are held in cooperation with The *Consumer Price Index* as well as the statistics for Purchasing Power Parities and Price Level Indices. Members of the committee are; the Ministry of Finance, the Ministry of Economic Affairs and the Interior, The Danish National Bank and the Danish Competition and Consumer Authority. Membership may be changed as needed.

4.3 Data completeness rate

The statistic is covered by requirements from the EU in terms of industry coverage, level of detail, frequency and release times. Statistics Denmark meets all these requirements. Some indices are not included in the population because the goods are of a special nature or because turnover is too low. Other sub-indices are included in the sample, but not published due to confidentiality reasons.

5 Accuracy and reliability

The sample contains 6400 prices from Danish manufacturers and importers. The most important enterprises within selected areas are requested to report prices. In this way it is ensured that the producer and import price index covers at least 70 percent of Danish production and imports. It is therefore assumed that price developments in the sample represents the price movements in the population.

5.1 Overall accuracy

Prices are collected for approximately 1050 groups of commodities covered by approximately 6400 price series. The samples for each commodity group are selected top-down to achieve as high turnover coverage as possible. It is assumed that the price developments in the samples expresses the price developments in the whole population. Since the focus is on covering as much turnover as possible, rather than reflecting typical price developments as in the *Consumer Price Index*, the indices may as deflators move in slightly different directions than pure price indices.

5.2 Sampling error

The samples for each commodity group are selected top-down to achieve as high turnover coverage as possible. The samples are thus not based on the probability of sampling selection corresponding to the importance of each commodity. To match the turnover balances in the National Accounts, prices are strictly collected from companies within the specific six-digit commodity groups. 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

Inaccuracy in weights: The weights, which are based on the supply and use tables from national accounts for the year 2010, are equal to the sum of the import- and production values for the home marked. The current weights were implemented by the publication of the index for January 2014. There is this a constant lag in the weights used of at least four years.

Quality change bias: As time passes, the commodities in the sample gets replaced. Because the new commodities often have different quality than the commodities that they replace, there is continuous quality adjustment of the index. When replacing commodities, new commodities are not included in the index before their prices are observed in two subsequent periods. A bias can arise in cases where price changes coincide with changes in quality. Methods for dealing with quality changes are described in IMF's guide for Producer Price Index for Commodities (Producer Price Index Manual - Theory and Practice).

Maintenance of the basket of goods: There might be a tendency towards keeping commodities that are out of fashion too long in the sample. The enterprises are regularly asked to update the basked of goods.

Response errors: Errors may occur when an enterprise report prices for other commodities than expected. The reason for this is normally misunderstandings e.g. change in staff.

Recording errors: Errors may occur when questionnaires are recorded in Statistics Denmark. Our error checking procedures normally spot such errors. Recording errors are not regarded to be important.

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

There are large differences between the commodity- and industry groups that the *Producer and Import Price Index for commodities* covers. There is great variation in the number of companies from group to group. In some groups it is possible to cover a large amount of turnover with a small sample, whereas in others, it is difficult to cover a small amount of turnover even with a large sample. Hence it is not possible to determine a common quality benchmark across all groups.

A comprehensive quality assessment is therefore based on a combination of assessing turnover coverage, the number of companies and prices in the sample and the quality of the collected prices, including the pricing methods used. The quality of the statistic is being continually monitored and improvements are made where it is assessed that the quality can be levered. Conducting quality work therefore includes making replacements within- and increasing the sample with more respondents. Asking existing respondents to report more prices, or use better pricing methods to define and calculate prices.

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 statistics are published every month. For a specific month it will be published on the 15th of the following month or the first business day thereafter. The statistics are usually published without delay in relation to the scheduled date.

6.1 Timeliness and time lag - final results

The statistics are published every month. For a specific month it will be published on the 15th of the following month or the first business day thereafter.

6.2 Punctuality

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

7 Comparability

Producer and import price index for commodities can be found as a complete time series from 2005 until today. The statistics follows international standards and can therefore be compared with similar statistics from other European countries.

STATISTICS DENMARK

7.1 Comparability - geographical

All EU member states are required to produce The *Producer and Import Price Index* under the guidelines of the Council Regulation (EC) no. 1165/98 concerning short-term statistics. The statistics can be compared internationally on the webpage of Eurostat. Also, outside the European community, The *Producer and Import Price Indices* are produced.

7.2 Comparability over time

These statistics have been produced in its current form since 2000, but changes in the year of comparison, the base year and the industry classification have occurred during that period.

- From 2005 to 2008, 2000=100, weight year is 2000 and industry classification is DB03
- From 2009 to 2013, 2005=100, weight year is 2005 and industry classification is DB07
- From 2014 to 2018, 2010=100, weight year is 2010 and industry classification is DB07

To enable comparisons with earlier periods it is, in principle, possible to interlink old and new indices by comparing indices with new and old year of comparison for the same period.

7.3 Coherence - cross domain

The collected price data is used in compiling price indices for:

1. Producer price index for commodities by Industry and market
2. Producer price index for commodities by Industry standard industrial groupings
3. Import price index for commodities by Industry
4. Price index for Domestic Supply by commodity group

The *Producer Price Index for Commodities* is also related to the *Producer price Index for Services*. That is similarly used for fixed price calculations in the Danish National Accounts.

7.4 Coherence - internal

Price indices by industry groups and commodity group are calculated on the basis of the same data.

8 Accessibility and clarity

These statistics are published monthly in a Danish press release. In the StatBank, these statistics can be found under Producer and Import Price Index for Commodities. For more information visit the subject page on Business Prices.

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.

STATISTICS DENMARK

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

These statistics feature in the Eurostat Statistical Book on European Price Statistcs - An overview. These statistics also featured in the Statistical Yearbook until 2017.

8.6 On-line database

These statistics are published in the Statbank under Producer and Import Price Index for Commodities in the following tables:

Producer price index for commodities

- PRIS4415: Producer price index for commodities (2015=100) by commodity group, market and unit
- PRIS4015: Producer price index for commodities (2015=100) by Industry (groups), market and unit
- PRIS4215: Producer price index for commodities (2015=100) by industry standard industrial groupings and unit

Import price index for commodities

- PRIS4515: Price index for Domestic Supply (2015=100) by commodity group and unit
- PRIS4115: Import price index for commodities (2015=100) by Industry (groups) and unit

Price index for domestic supply

- PRIS1115: Price index for Domestic Supply (2015=100) by commodity group and unit
- PRIS4615: Import price index for commodities (2015=100) by Industry (groups) and unit

Producer and import price index for commodities

- PRIS4315: Producer and import price index for commodities (2015=100) by Industry (groups), market and unit

STATISTICS DENMARK

8.7 Micro-data access

Researchers and other analytics from authorized research institutes, may apply for access to the statistics micro-data with Danish Statistics' research program Data for research. Only Danish research environments are granted authorization. Foreign researchers can, however, get access to micro-data through an affiliation to a Danish authorized environment. . A similar research program is available for Danish state departments, agencies and directorates.

Micro-data in the form of price information:

- Paper questionnaires are stored for the current year and for the previous two years.
- Electronic reports are available back to the year 2010.

In addition, micro-data at the level of elementary aggregates are available back to the year 1993 for the *Producer and Import Price Index*.

8.8 Other

The statistic is available in Eurostat's database.

8.9 Confidentiality - policy

Data Confidentiality Policy for Statistics Denmark.

8.10 Confidentiality - data treatment

Confidential data are treated by suppression. In practice this means that there will not be published any figures where individual companies can be identified, unless the figures are already publicly available. The Statute of Statistics Denmark and a letter explaining terms and conditions, including the confidentiality of individual responses, are sent out to all enterprises participating in the survey.

8.11 Documentation on methodology

These statistics follows the principle in the Handbook on industrial producer price indices (PPI) from 2012 and the Producer Price Index Manual: Theory and Practice from 2004.

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 Janni Stavad, tel. +45 39 17 34 41, e-mail: sta@dst.dk

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