

**Documentation of statistics for  
Index of Production in Construction 2018**

## 1 Introduction

The purpose of Index for Production in Construction (IPC) is to b. The statistics are used to illustrate the business trends in the sector. These statistics have been compiled since autumn 2014, but is in its current form comparable from January 2000 and onwards.

## 2 Statistical presentation

IPC are a monthly measurement of the business trends in the sector stated in index. The statistics are grouped by total, building construction and civil engineering and covers Denmark.

### 2.1 Data description

Production index for construction industry is calculated for, total for construction and divided in building construction and civil engineering. The monthly IPC is based on Working Time Accounts (WTA) in Construction/Nace F.

### 2.2 Classification system

The industrial main group NACE F/DB07 (danish version) is defined by the most important economic activity by the firm. The following business are used: The IPC is divided into:

- Total Construction
- Building construction (F41+F43)
- Civil engineering F42)

### 2.3 Sector coverage

The monthly index of production in construction is based on hours worked in enterprises whose primary occupation is construction (NACE Section F).

The WTA are based on a combination of census and survey data. Therefore, all size classes are covered.

### 2.4 Statistical concepts and definitions

Construction: The sector consist of section F in NACE

## **2.5 Statistical unit**

The Working Time Accounts produce integrated statistics with consistent time series on employment, jobs, number of hours worked and compensation of employees on an annual and quarterly basis. The data basis is made up by a number of primary statistical data, which are adapted and adjusted to achieve agreement of the concepts and definitions used in the WTA system.

The statistical sources used in the WTA are:

- The Register-Based Labour Force statistics (RAS)
- Establishment-related employment statistics (ERE statistics)
- The Structural Earning Statistics (SES)
- Employment Statistics for Employees (BfL)
- The Labour Force Survey (LFS)

Observation units:

- Paid hours worked
- Earned DKK
- Number of persons
- The number of jobs

## **2.6 Statistical population**

The population consist of firms in construction (section F in NACE) with employment in Denmark

## **2.7 Reference area**

All regions of Denmark are covered.

## **2.8 Time coverage**

The monthly production index was produced for the first time in 2007, but data from 2000 are produced

## **2.9 Base period**

2015=100.

## **2.10 Unit of measure**

Index.

## **2.11 Reference period**

Monthly

## **2.12 Frequency of dissemination**

Monthly.

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

Section 8 of the Act on Statistics Denmark secures the legal ground for collecting the data. The statistics fall under Council Regulation (EU) no. 1165/98 of 19 May 1998 and no. 1893/2006 of 20 December 2006 regarding short-term-statistics.

## **2.14 Cost and burden**

These statistics are based on administrative data. There is thus no direct response burden, in relation to the compilation of these statistics.

## **2.15 Comment**

For further information contact Statistics Denmark.

## **3 Statistical processing**

The monthly Index for Production in Construction is based on Working Time Accounts in Construction. The figures for employment are indexed and corrected for productivity and number of workingsdays.

### **3.1 Source data**

The IPC is based on WTA, which are exclusively based on existing data sources, which are subsequently converted to the concepts used in the WTA. WTA is a quarterly statistics, but there are made monthly extracts of the hours worked of employees for the month between the quarters.

### **3.2 Frequency of data collection**

Quarterly for total and monthly for employees.

### **3.3 Data collection**

The data is collected from the Working Time Accounts

### **3.4 Data validation**

The 3 series are separately compared with the last month - and the rest of the serie - where the level of revisions and the developments are evaluated. There are not made any intra-dataset checks, but the plausibility are evaluated in proportion to knowledge about the construction sector.

### **3.5 Data compilation**

The monthly data from WTA are divided into building, civil engineering and total for Construction, which is a sum of hours worked for building construction and civil engineering.

But only the quarterly figures consist of all the hours worked by employed employees, self-employed and assisting spouses. In the months between the quarters, the figures only consist of hours worked by employed employees. These months are extrapolated with the rate of increase for the month in question, calculated on basis of the whole serie.

After the hours worked is adjusted for productivity the figures are made by a simple volume index.

### **3.6 Adjustment**

Calendar adjustment

The three data series are adjusted for calendar effects, using Tramo/Seats (Demetra v. 2.1). This also means that the calculation of the calendar adjusted total series is performed by a direct approach, and therefore there is not always consistency between the two subseries and the total.

The model is chosen automatically and re-estimated only annually. Parameters are re-estimated every month. For the calendar adjustment reg ARIMA is used, and the adjustment includes the effect of moving holidays (Easter), trading days and leap-year. The default calendar is used, and all three series have significant trading day effect, Easter effect and leap-year effect.

The series are also adjusted for productivity. The National Accounts calculation of productivity is used.

## **4 Relevance**

The Index for Production in Construction illustrate the actual business conditions, which can be used to get a overview over the business trends in the sector.

### **4.1 User Needs**

The objective with the statistic is to give interested users a quick overview of the cyclical trend in the construction sector.

### **4.2 User Satisfaction**

The index is a requirement from Eurostat and has formerly only been send to Eurostat. After an improvement of the method is it decided to also published it in Denmark. This decision has been discussed in the contact group for construction and dwelling statistics, which had approved the project.

### **4.3 Data completeness rate**

The Index for Production in Construction complied with the recommendations and demands i Council Regulation (EU) no. 1165/98 of 19 May 1998 and no. 1893/2006 of 20 December 2006 regarding short-term-statistics.

## **5 Accuracy and reliability**

The margins of statistical uncertainty associated with the IPC are related to the statistical uncertainty of WTA and the productivity calculations.

### **5.1 Overall accuracy**

The margins of statistical uncertainty associated with the IPC are related to the statistical uncertainty of WTA and the productivity calculations.

In the long run (12 months), there is a good agreement with the National Accounts gross value added for the construction sector.

### **5.2 Sampling error**

Not relevant for this statistics

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

For WTA some employees lack information on hours paid or the reported information has been found to be invalid. Therefore imputed (estimated) paid hours of work for these reports. Furthermore, the self employed has a tendency to overstate their reports more than employees do.

For the moment, there are no precise calculation of the productivity factor in Construction. Until it is done, the IPC use the Nationals Accounts estimated which is 1 % yearly.

### **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 is carried out two controls of the quality in connection with making the index:

1. Did the development in the IPC comply with comparable statistics, especially Construction and Number of Persons Employed in the Construction Industry
2. The size of revisions in the last couple of years - should be under 1 pct.

## 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

The Danish IPC is calculated on the basis of hours worked from the Working Time Accounts (WTA) statistics. These hours worked include employed employees, self-employed and assisting spouses. However, data on the hours worked of self-employed and assisting spouses for a given quarter is only available quarterly. This means that for the first publications of the production in the first and second month of any quarter, hours worked for these two categories are extrapolated by the growth rate(s) of the hours worked of employees. So, for every publication of data for the third month in a quarter, when all data is actually available, the published figures for the first two months of that quarter is revised.

These revisions are normally well below one percent for the total construction. For the subindex of civil engineering it can be a little higher. It should be noted that the current method is still very new, so the revision numbers are largely based on simulation studies. They will be reevaluated, when more real revision data is available.

In addition to these quarterly revisions there are annual revisions on the hours worked from the WTA and they are also included as revisions in the IPC. These revisions are due to late available data from the annual statistics on the structure of earnings, which is used in the combination of the WTA. The structural data is available more than 15 months after the end of the year, and the revisions will therefore cause revisions to the WTA and hence the IPC over two years back in time. An example for clarification: The structural data for 2013 was available in April 2015. Before the the WTA data for 2013, 2014 and 2015 was based on the structure of 2012. So when the new data was available, all WTA data from January 2013 and forth was revised, and so was the IPC.

Normally these annual revisions should be minor, compared to the quarterly revisions, but the revision in 2015 was extraordinary large, resulting in revisions to the IPC as big as 2 pct. Revision of this magnitude are not expected again in the near future.

There are no other benchmarking or other irregular revisions.

## 6 Timeliness and punctuality

Data is transmitted to Eurostat and published in Statbank within two months after the reference month.

### 6.1 Timeliness and time lag - final results

Monthly data is published approximately two months after the end of the reference month. For both the quarterly figures (total) and the temporarily monthly figures (excluding self-employed and assisting spouses) for the month between are ready about 55 days after the end of the reference month.

## **6.2 Punctuality**

Data is transmitted to Eurostat and published in Statbank within two months after the reference month.

## **7 Comparability**

There is not carried out any comparisons with other statistics on national level. Eurostat makes international comparisons. The statistics have figures that can be compared from 2000.

### **7.1 Comparability - geographical**

Eurostat made international comparisons

### **7.2 Comparability over time**

Until autumn 2014 the IPC was calculated on basis of the quarterly gross value added in Construction from the National Account. There are no major breaks in the serie from 2001 until 2014. From autumn 2014 the IPC has been calculated on the basis of working time account - corrected for productivity. The time serie is calculated back to January 2000 with the new method.

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

In connection with the change of method there was a comparison with index for gross value added in Construction from National Account. In the long run (12 months), there is a good agreement with the National Accounts gross value added for the construction sector.

There is no current confrontation with other data sets.

### **7.4 Coherence - internal**

In the former method there has been few problems of coherence between CC1, CC2 and the total. These problems seems not existing in the new method.

## **8 Accessibility and clarity**

The statistics are published in the StatBank under [Index of production in construction \(IPC\)](#). For further information go to the [subject page](#).

### **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**

Not relevant for these statistics.

### **8.5 Publications**

Not relevant for these statistics.

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

The statistics are published in the StatBank under [Index of production in construction \(IPC\)](#) in the following tables:

- [BYGPRO](#): Index of production in Construction (IPC) by industry and time

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

These statistics micro-data are not available.

### **8.8 Other**

Data are transmitted to Eurostat monthly.

### **8.9 Confidentiality - policy**

[Data Confidentiality Policy](#) at Statistics Denmark.

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

There is no need to discretionate since IPC is based on aggregated data

### **8.11 Documentation on methodology**

Not relevant for these 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 these statistics is in the division of Business Statistics. The person responsible is Erik Nielsen, tel.: +45 3917 3541, e-mail: [eni@dst.dk](mailto:eni@dst.dk).

### **9.1 Contact organisation**

Statistics Denmark

### **9.2 Contact organisation unit**

Short term statistics, Business Statistics

### **9.3 Contact name**

Erik Nielsen

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Responsible for the statistics

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