

**Documentation of statistics for  
Employees (monthly) 2023 Month 12**

## 1 Introduction

The purpose of these statistics is to clarify the short-term development in the employment of employees in Danish enterprises. The statistics contains employment data from the beginning of 2008.

## 2 Statistical presentation

The employment statistics for employees is published on a quarterly and monthly basis. The statistics shows the development in the number of people with employee job. On a quarterly basis the number of full-time employees is also published. The statistics is distributed by sector and industries both in the monthly statistics and in the quarterly statistics. Furthermore, workplace geography, residence geography, age, sex and ancestry is also illustrated on a quarterly basis.

### 2.1 Data description

Full-time employees: The number of full-time employees is based on the number of hours paid for in a month divided by 160.33. The number of full-time employees in the quarter is calculated as the average number of full-time employees in the three months of the quarter. The number of persons with a job as employee is calculated as the average number of persons with employee jobs during the reference period. Number of persons with employee job is published on a monthly and quarterly basis. All variables are documented in the documentation tool TIMES in Statistics Denmark.

### 2.2 Classification system

The preliminary statistics are distributed by [sectors](#) and overall [DB07](#) industries (10 and 19 Standard industrial groupings). The revised and final statistics are distributed by [sectors](#), more detailed [DB07](#) industries (19 Standard industrial groupings) and workplace [geography](#). In the final statistic data is distributed by geography of residence, age, sex and ancestry.

### 2.3 Sector coverage

These statistics include employee jobs in Danish enterprises where wages are reported to Danish tax authorities' income register, regardless of sector and whether the employee lives in Denmark or abroad. The statistics cover all sectors, which Danish registered enterprises can be assigned (i.e. all sectors excluding the rest of the world and foreign-controlled entities).

## 2.4 Statistical concepts and definitions

**Employee:** Person who work for a public or private employer and who receives compensation in the form of wages, salaries, payment by results or payment in kind. Non-conscript members of the armed forces are also included.

**Employee job:** An employees attachment to an establishment (local kind of activity unit) for a period of time. One person can have more than one job at different establishments during the same reference period and can have more than one job at the same establishment during different periods.

**Person with an employee job:** Person who has an employee job without conversion to a full-time equivalent. All employees are included regardless of whether they work full or part time. Also, employees who have employee job as a side job to a main job as self-employed are included. Finally, employees who are resident outside the country are included in the calculation. A person who has only employee job part of the month is only included in the relevant part of the month. Employees who for up to 45 days have not received wages, but subsequently returned to the same employer, are included in the period without pay.

**Full-time employee:** On the basis of the total paid hours of work, one full-time employee is calculated by dividing the total number of paid hours in a month with 160.33. The number of full-time employees in the quarter is calculated as the average number of full-time employees in three months of the quarter.

**Paid hour of work for employees:** A paid employee hour, is an hour that an employer has paid wages for or which is covered by a salary.

**Establishment (workplace):** The geographical location which the employee is assigned to professionally.

## 2.5 Statistical unit

The number of full-time employees is measured as the number of paid hours converted to full-time employment and published as integers. The number of people with employee jobs are measured in number of persons in the month or as an average of the three months of the quarter.

## 2.6 Statistical population

Employees in Danish registered companies

## 2.7 Reference area

Employment statistics for employees include employee jobs in Danish enterprises regardless of whether the employee lives in Denmark or abroad.

## 2.8 Time coverage

These statistics cover the time period from 2008 and onwards.

## **2.9 Base period**

Not relevant for these statistics.

## **2.10 Unit of measure**

The number of full-time employees is measured in full-time equivalents and published rounded to integers. Number of persons with employee jobs is measured in number of persons and published in integers.

## **2.11 Reference period**

Month and quarter.

## **2.12 Frequency of dissemination**

These statistics are published monthly and quarterly.

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

Data is received from the Ministry of Taxation's (former SKAT's) eIncome Register according to the Act on Statistics Denmark (Lov om Danmarks Statistik) § 6. The compilation of these statistics is not covered by any EU-legislation.

## **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. Data are collected by the Danish tax authorities (the Ministry of Taxation).

## **2.15 Comment**

Further information can be found at the [Subject page](#) for these statistics, or by contacting Statistics Denmark directly. General information about the conceptual differences between employment statistics can be found at the subject page for [Employment](#).

## **3 Statistical processing**

Data are debugged, adjusted and quality guaranteed in relation to breakdowns on industry, sector and geography. Data for both the number of full-time employees and number of people with employee job is seasonally adjusted, broken down by both industry, sector and geography on residence.

### **3.1 Source data**

The source of the statistics is the eIncome Register of Statistics Denmark combined with data from the Business Register and the Population Register of Statistics Denmark. The eIncome Register of Statistics Denmark is based on income information reported to the eIncome Register of the Ministry of Taxation.

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

According to Act on an Income Register employers have to report wages paid at least once a month. Reports are transmitted from the Danish Ministry of Taxation on a daily basis.

### **3.3 Data collection**

According to Act on an Income Register employers have to report wages paid at least once a month. Reports are transmitted from the Danish Customs and Tax Administration (the Ministry of Taxation, before July 1st 2018 named SKAT) on a daily basis.

### **3.4 Data validation**

Employment statistics for employees is checked for errors at the macro level and corrected at the micro level (top-down). Errors are prioritized that affect the statistics most, implying that the statistics is selectively debugged. All corrections are recorded but the numbers have not been calculated. The most significant errors are placement of employees at an incorrect establishment and erroneous industry and sector information which affects the uncertainty as to the sectoral distribution of full-time employees (or number of persons with employee jobs) at the detailed level. When errors are detected and corrected in Employee Statistics, Statistics Denmark's Business Register is informed so that corrections can be made in the Business Register as well. Corrections made from one version to the next of Statistics Denmark's eIncome Register are recorded but the total number has not been calculated.

### **3.5 Data compilation**

Employment statistics of Employees is based on Statistics Denmark's eIncome Register. In case that there is no reported hours paid for, or the data is considered invalid or improbable, imputation on paid hours is made. Using Statistics Denmark's Business Register the workplace is verified and the job is connected to the workplace.

Calculated enumeration factors adjust for the fact that not all jobs have been reported to the eIncome Register for the latest reference period. There is one factor for each concept, i.e. different enumeration factors for the number of full-time employees and number of persons with employee job. The enumeration factors are broken down by industry and sector.

### 3.6 Adjustment

Number of persons with employee job are calculated. All employees are included regardless of whether they work full or part time. Also, employees who have employee job as a side job to a main job as entrepreneur are included. Finally, employees who have residence outside the country are included in the calculation. A person who only has an employee job part of the month, is only included in the relevant part of the month. Employees who for up to 45 days have not received wages, but subsequently returned to the same employer, are included in the period without pay.

**Reporting of hours of paid work:** In case of a lack of reported number of hours paid for, or the reports are considered invalid or improbable, a calculation of these are made. The calculated paid hours of work in 2008 amounted to approximately 15 per cent of the total number of hours paid for, but is now usually less than 5 per cent. The percentage varies according to industry and sector.

**Reporting of production unit number:** Employers who have more than one production unit must specify the production unit where the employee is assigned. However, there are a number of employers, particularly in the public sector whose information are deficient in this area. Using Statistics Denmark's Business Register the missing or erroneous production unit is replaced with a more valid one. A number of employees work on changing locations or do not work at one of the company's units at all (e.g. temporary workers, cleaners, sales assistants and home helps). It is associated with uncertainty to identify these groups and to place the job geographically. Where it is not possible to place a job geographically it is normally placed in nearby the employee's place of residence.

**Seasonal adjustment:** Employment statistics for employees is seasonally adjusted indirectly by sector and 19 industries. Seasonally adjustment is made on a monthly basis in SAS / Demetra. The seasonal adjustment is based on time series from January 2008.

**Review and update of the seasonal adjustment models – September 2023:** The seasonal correction models for the employment statistics for employees have been reviewed and updated in September 2023 with the publication of July 2023 and the 2nd quarter of 2023 with the publication of July 2023 and the second quarter of 2023. It is common practice in Statistics Denmark that seasonal corrections for time series are reviewed and quality assured approx. every two years to ensure that any changes in seasonal patterns are incorporated into the seasonal correction. The update of the seasonal adjustment includes both the time series calculated in number of employees (persons) and in full-time employees, and includes both monthly and quarterly figures. The update has only resulted in small adjustments in the seasonally adjusted series. The seasonally adjusted series for the period 2008 to 2019 have been frozen, so that the seasonally adjusted values up to and including December 2019 are not revised in future publications. In future publications, the seasonally adjusted figures will be revised for the current year and the three previous years.

## 4 Relevance

Users interested in the social and economic statistics have expressed satisfaction with the quality of the statistics.

### 4.1 User Needs

Users of the statistics are politicians, interest organizations, municipalities, counties, government departments, enterprises and others with an interest in the development of the Danish labour market.

## 4.2 User Satisfaction

Every two years a [Citizen Survey](#) examines the public attitudes on official statistics and knowledge of Statistics Denmark.

## 4.3 Data completeness rate

Not relevant for these statistics.

## 5 Accuracy and reliability

The uncertainty in the development of the number of employees is estimated to be less than 1 per cent of the total number of full-time employees, where 1 per cent corresponds to approx. 20,000 full-time employees. As regards more detailed statistics in terms of industry and geographical distribution the uncertainty is much greater. For the monthly statements there has not yet been a systematic quality studies of statistics. Compared to the quarterly statements of full-time employees, there are two factors pulling in opposite directions: on the one hand, the monthly statements are published earlier, leading to increased uncertainty, because fewer reports has been reported at that time. On the other hand, jobs are imputed for periods where the employees for up to 45 days have not received wages, but subsequently returned to the same employer in the calculation of persons with employee jobs, which helps to reduce uncertainty.

### 5.1 Overall accuracy

The uncertainty in the development of the number of employees is estimated to be less than 1 per cent of the total number of full-time employees, where 1 per cent corresponds to approx. 20,000 full-time employees. As regards more detailed statistics in terms of industry and geographical distribution the uncertainty is much greater. Quality studies have so far only been made to a very limited extent.

Not only is there has been a significant quality improvement in employment statistics related to the transition to eIncome. Over time, the eIncome register have also been improved. Thus, a quality measure for the calculation of full-time employment is the proportion of hours paid in eIncome that have been imputed because they have either not been reported or because they have proved to be invalid.

In general, there is a tendency that more and more report information on hours paid to eIncome, which guarantee a better quality over time. Furthermore, the guidelines from the tax authorities on the reporting of hours paid to eIncome have become more clear, and the precision and knowledge of concepts is increased in the reporting over time so that, for example, the reporters become aware that unpaid absences is not be included in the reported hours paid.

### 5.2 Sampling error

Not relevant for these statistics.

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

The uncertainty in the development of the number of employees is estimated to be less than 1 per cent of the total number of full-time employees, where 1 per cent corresponds to approx. 20,000 full-time employees. As regards more detailed statistics in terms of industry and geographical distribution the uncertainty is much greater. Quality studies have so far only been carried out to a very limited extent.

Some reports to eIncome 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.

### **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**

Data validation focuses on the areas that affect the statistics most. This means that there is a particular focus on the reporting of hours of paid work where defective reported wage hours are rectified. Also erroneous reporting of employees' attachment to the establishment (workplace) is rectified.

In the eIncome register information on hours paid in (employee) jobs is reported in each reference month. The quality of these data reflect, of course, how good the reports are. Generally, it is our feeling that it is high quality information. However, especially relating to information on unpaid hours of absence and hours of overtime there may be quality problems in the eIncome data. Lack of devaluation of the monthly paid hours of work as a result of unpaid absence leads to an overestimation of paid hours. Lack of registration of paid overtime would result in an underestimation of hours paid. Typically, the registration problem is worse about unpaid absences. There can be, especially for salaried who do not have paid absence, be a problem in that the hours are not always written down sufficiently during periods of absence. When reporters become aware that the hours must be changed when there is unpaid leave, and they suddenly begin to report these correctly, this affects the projection of paid hours of work over the year and the development from year to year. Unfortunately, this increased attention to the reported paid hours of work is not happening at the same time for everyone, why it can be difficult to detect these error alerts in the production system and adjust for this back in time. In connection with the publication of employment statistics for employees third quarter of 2012 in December 2012 data were adjusted for such error reports to eIncome for monthly paid employees in municipalities and regions back in time (for the period January 2008 to August / September 2011). This is done by using monthly reports on absences that employees are not paid for to the Earnings Statistics . The hourly reports to



the Earnings Statistics include more detailed split than hour reports to eIncome.

On the main level assessed statements of full-time employees are judged to give a true picture of the level and development, but because of defects in the material, which has been reported, there is some uncertainty regarding the distribution on industry, sector and geography. Correct values of these variables depends on whether the employer report correct production numbers. For municipalities and regions, incomplete reporting of production unit numbers result in uncertainty regarding the branch location, while defects in the private sector especially raises uncertainty on the geographical distribution.

A constant full-time standard for all employees, namely 37 hours per week (160.33 hours per month). This is equivalent to full-time norm for most tenured functionaries. However, there may be groups who have another full-time norm, for example, hourly paid or newly hired salaried employees who have a full-time norm of less than 160.33 hours per month, as these groups typically will not receive wage when on temporary absence such as holiday. This has implications for the levels and the interpretation of the number of full-time employees. However, it is not possible based on eIncome material to divide the population according to various groups of employees with different full-time standards. One advantage of having the same full-time norm for all employees is that it is simple to convert the number of full-time employees to hours paid for, providing an indicator of trends in employment volume for employees. This enables users to easily develop alternative splits (with varying full-time standards) based on their needs and the groups they want to compare.

In the monthly statistics of employees and in the quarterly statistics of employees figures on the concept "number of persons with an employee job". In determining this concept, Statistics Denmark has taken into account that hourly workers and newly hired salaried employees do not have paid vacation. This is carried out by including employees who in a period of up to 45 days have not received wages but subsequently returned to the same employer also in the period in which they have not received salaries.

Under the old flex job scheme the employer in most cases pays full salary, though the number of working hours normally is significantly lower. The employer receives in return a government grant. Under the new scheme the employer pays, however, only for the agreed working hours while the person on flex job receive social assistance from the municipality. In order to improve comparability over time in the statistics, individuals included under both the old and the new flex job scheme, occur in the statistics with the number of hours corresponding to the agreed working hours. For the individuals on the old flex job scheme, where there is no information about the person's working hours, an average working hour is used.

Starting with the release of Q1 2016, more quality improvements are incorporated in the statistics, which are carried back to the statistics began in 2008. The majority of the quality improvements are already incorporated in the Labour Market Accounts, and will be incorporated in the new Working Time Accounts. For a number of groups the adjusted number of payed working hours are compared to previous publications of the statistic. Other quality improvements are also incorporated, including the geographic distribution. As a result of the changed number of hours of paid working hours, the level and evolution in the number of employees are changed compared to previous publications, while the total number of employee jobs are unaffected by the changes. A detailed description of the quality improvements can be read here <https://www.dst.dk/ext/arbe/kvalitetsforbedringer>.

## 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

**Revision Policy:** The preliminary analysis of the statistics are published approx. 45 days after the end of the quarter. The revised statement issued approx. 75 days after the reference quarter and the final statement 3 months later together with the revised statistics for the following quarter. No further revisions are made, as later changes have limited implications for the description of the short-term development. The final estimates of total employment is determined in the structural statistics Register Based Labour Force Statistics (RAS).

## 6 Timeliness and punctuality

The preliminary figures of the monthly statistics are published approx. 52 days after the end of the reference month. These statements are revised every month until final estimates are released in the quarterly statistics.

The preliminary employment statistics for employees are published approx. 52 days after the end of the quarter. The revised statement will be published within 3 months after the reference quarter and the final statement 3 months later together with the new preliminary data for the following quarter. There is usually no delay in relation to the scheduled date.

### 6.1 Timeliness and time lag - final results

No relevance for these statistics

### 6.2 Punctuality

These statistics are published without delay, with reference to the announced time of publication in the release calendar.

## 7 Comparability

There are no changes in methodology since these statistics were first introduced. Data are comparable during the whole period.

### 7.1 Comparability - geographical

Similar statistics are not available in other countries as the data source (the eIncome register in SKAT - the Danish Customs and Tax Administration) is unique to Denmark.

## 7.2 Comparability over time

In the preliminary release, the employment figures are grouped by sector and overall industries. The revised and final figures are distributed by sector, by more detailed industries and by geographical workplaces. Data is debugged, adjusted and quality guaranteed in relation to breakdowns on industry, sector and geography etc., by assessing corporate reporting and workplace location over time. The data are comparable over time. From 1st Quarter 2013 a new sector classification based on [ESA 2010](#), further divided as [ESR sectors](#) is used. Numbers for 2008 to 2012 are available using both old and new sector classification. When publishing the revised numbers for 1st Quarter 2013, revisions have been carried out for the complete period from 2008 to 2012. The revisions include:

1. correction for unpaid absence in municipalities and regions from 1st Quarter 2008 to 3rd Quarter 2011 reducing the number of full-time employed in the two sectors,
2. removal of jobs with little volume that should not be considered employment, which has only marginal influence on the number of full-time employed, and
3. quality improvements which mainly influence the distribution on industry, sector and workplace geography.

At the publication of the revised figures for third quarter of 2018 demographic information are added, and smaller revisions of the period 2008-2018 are done.

## 7.3 Coherence - cross domain

Monthly figures on the number of persons with employee jobs act as input to the calculation of quarterly figures on the number of persons with employee jobs.

Quarterly employment statistics are also published in other publications which, in some cases, are based on other data sources and are therefore not directly comparable:

- Public employment statistics which uses part of the Employee Statistics population.
- Quarterly Working Time Accounts, where the number of employees since the transition to eIncome sources end of 2013 has been projected based on figures from the Employment statistics for employees.
- National accounts whose employment is based on the Working Time Accounts.
- Labour Force Survey, which is based on a household survey.
- Employment in the construction industry, which is based on a survey among companies in the construction industry.

## 7.4 Coherence - internal

The statistics are consistent within a given data set.

## 8 Accessibility and clarity

These statistics are published monthly in a Danish press release, at the same time as the tables are updated in the StatBank. In the StatBank, these statistics can be found under the subject [Employees](#). 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.

### **8.3 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.

### **8.2 Release calendar access**

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

### **8.4 News release**

These statistics are published monthly in a Danish press release.

### **8.5 Publications**

These statistics are not part of any publications from Statistics Denmark.

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

These statistics can be found in the StatBank under [Employees](#).

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

Data based on the final release are available to researchers. The detailed data for the statistics are available through the Researchers Programme one year after the reference period. When the final figures are published, they are made available in the form of some data sets containing detailed personal information, but the employee's connection to the workplace does not appear, apart from the work sites overall relation to industry, municipality, region and sector. Further information go to [Data for Researchers](#).

### **8.8 Other**

It is possible to purchase more detailed data based on the revised and final releases. Read more about [customized solutions](#) or contact DST Consulting for further information.

### **8.9 Confidentiality - policy**

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

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

The statistics is not published on a level of detail which requires specific confidentiality.

### **8.11 Documentation on methodology**

There are no separate documentation on methodology 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 Labour and Income. The person responsible is Thomas Thorsen, tel.: + 45 3917 3048, e-mail: [tst@dst.dk](mailto:tst@dst.dk).

### **9.1 Contact organisation**

Statistics Denmark

### **9.2 Contact organisation unit**

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### **9.3 Contact name**

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Responsible for the statistics

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