

**Documentation of statistics for  
International Labour Cost Indices 2015 Quarter 1**

## 1 Introduction

The purpose of publishing the international labour cost indices is to compare trends in earnings and other labour costs in the private sector in Denmark with trends in the EU countries and the US. The figures for the EU countries are collected from EU's statistical office, Eurostat, which publishes the figures on their homepage on a quarterly basis. Eurostat collects information from each member state's national statistical institution. The U.S. figures are collected by the U.S. Department of Labour, Bureau of Labor Statistics, which publishes their figures on their own homepage.

The international labour cost indices are not directly comparable with the national indices of average earnings.

## 2 Statistical presentation

The indices are published on a quarterly basis to show developments of the Danish and other countries labour costs in an international setting. The figures from EU member countries are based on EU-harmonized regulations. It is expected that the harmonization will extend gradually over time. The numbers are not fully comparable to the Danish national indices of average earnings, which are collected and published quarterly. The international labour cost indices are exclusively published in Statistics Denmark's quarterly news release *NYT fra Danmarks Statistik* entitled *International Labour Costs*, and where the EU-figures are collected from Eurostat database while the US figures stems from the Bureau of Labor Statistics (BLS) database.

### 2.1 Data description

The news release on international labour costs shows the yearly developments in the total labour cost per hour in the private sector for the 28 EU-member countries and the U.S. The labour costs constitute all costs associated with having people employed, i.e. including both direct and indirect remuneration of employees. The total labour costs are as a general rule measured against total hours worked.

### 2.2 Classification system

The statistics are published for all 28 EU member countries and the U.S.

### 2.3 Sector coverage

The indices are communicated as covering more or less the whole private sector. In practice this is defined by Eurostat as the "Business economy" and by the BLS as "Private Industry workers".

## **2.4 Statistical concepts and definitions**

**Other labour costs:** Other labour costs are costs that are not considered to be an income for an employee.

**Total hours worked:** Total hours worked constitute the total amount of time someone is actually present at work or performing.

**Total labour costs:** All direct and indirect remunerations associated with having a person employed.

**Total labour costs per hours worked:** Total labour costs include total earnings and other labour costs, total, both items are related to the number of hours worked.

**Wages and salaries:** Wages and salaries constitute the payment of the work agreed upon between an employee and his employer.

## **2.5 Statistical unit**

The data are published for all the 28 EU member countries and the U.S.

## **2.6 Statistical population**

Employees in enterprises or organizations in the private sector in the 28 EU member countries and in the U.S. In practice all enterprises in the broad sector of economic activity called *Business Economy* in the EU are covered, as well as enterprises in the sector *Private Industry Workers* in the U.S.

## **2.7 Reference area**

All EU member countries and the U.S.

## **2.8 Time coverage**

The statistics have been published by Statistics Denmark since 2003. Eurostat has information on labour costs going back to 1996, while the U.S. Bureau of Labor Statistics has published labour costs going back to 2001.

## **2.9 Base period**

In the case of the EU member countries, the labour cost indices are chain-linked Laspeyres price indices which currently use the year 2012 as reference year.

## **2.10 Unit of measure**

The counting unit is percentage.

### **2.11 Reference period**

The period of reference is a quarter of a year.

### **2.12 Frequency of dissemination**

The statistics are published quarterly.

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

There is no actual act or regulation demanding that Statistics Denmark publish statistics on the development of international labour costs, as the data in question are simply collected and published from already existing sources in Eurostat and the U.S. Bureau of Labour Statistics. Instead, it is statutory for all EU member countries, including Denmark, to collect and transmit information on labour costs to the labour cost index to Eurostat. The legal basis for this is stated in Regulation (EC) No 450/2003 of the European Parliament and of the Council of 27 February 2003 concerning the labour cost index.

### **2.14 Cost and burden**

As the indices are collected directly from the homepages of Eurostat and the BLS, there is no direct cost or burden associated with the collection and production of the news release.

### **2.15 Comment**

For further information, visit the page [Information on earnings and labour costs](#) or contact Statistics Denmark.

## **3 Statistical processing**

Data is collected from different sources where the data already has gone through statistical processing before being published.

### **3.1 Source data**

The databases of Eurostat and BLS.

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

Quarterly.

### **3.3 Data collection**

The figures being used are collected from the homepage of Eurostat and the U.S. Bureau of Labour Statistics (BLS).

### **3.4 Data validation**

As data validation is performed differently in all the countries included in the international labour cost indices, it is only possible to describe the way it is performed on the Danish index.

In case of the Danish index, the received data is validated on several levels through the steps in the production process. Already by the receipt of the data, a rough search for errors is performed, for example of whether the period of the payroll is as expected and whether the general format is adhered to. If this is not the case, the person or company responsible for the transmission is contacted either by mail or phone and asked to correct the error and retransmit. During the actual production of statistics, the data is validated more thoroughly. This is done both on the individual level, where for example it is checked whether there are missing values on hours worked and wage, and on firm level where for example average pay per hour and number of employees are compared to data transmitted for previous quarters.

### **3.5 Data compilation**

As data compilation is performed differently in all the countries included in the international labour cost indices, it is only possible to describe the way it is performed on the Danish index.

In case of the Danish index, the quarterly rate of increase in wages is calculated as the mean wage per hour worked in one quarter compared to the mean wage per hour worked in the previous quarter. This is done for every group of industry. Since the data is based on a stratified sample, the first step that is done is to calculate the correct average wage per hour for each industry in both quarters. The average wage per hour for a group of industry is calculated as the weighted average of the hourly wages for the different size of employment classes 10-19, 20-49, 50-99 and 100+. In the calculations, only enterprises that have transmitted data for the two consecutive quarters are included. After having calculated the average wage per hour for each size class in an industry, the average wage per hour is calculated for the industry as a whole by weighting the different size classes after the number of workers in each of them in a certain quarter. The difference between the average wages per hour in the two consecutive quarters is then added to the sub-index of the industry. The sub-indices are then aggregated from the 36-class of industry to the 21- or 10-class of industry. The final index for the whole private sector is then calculated by weighting the sub-indices with the number of workers in each of them for enterprises and organizations with 10 employees or more.

### **3.6 Adjustment**

Not relevant for the data on international labour costs.

## **4 Relevance**

The indices are used to compare and analyze how the Danish labour costs perform in an international setting, as it is an important indicator of the state of play of the Danish competitiveness compared to other countries. The statistics are therefore often mentioned in the daily news press and are often an important feature in the national public debate.

#### **4.1 User Needs**

The international labour cost indices are used in particular by national and international organizations, ministries and other public institutions. The indices are often used to follow the development of the labour costs in an international perspective. Furthermore, the European Central Bank (ECB) follows the indices closely to see how they affect the inflation rate in the Eurozone, as they are an essential element in deciding on the right strategy for monetary policy.

#### **4.2 User Satisfaction**

When looking at the extent of coverage in the press, the user satisfaction is taken to be quite high.

#### **4.3 Data completeness rate**

Not relevant in relation to the international labour cost indices.

### **5 Accuracy and reliability**

As the methods used for collection and production of the indices differ in all the countries included in the international labour cost indices, it is only possible to make any conclusions on the accuracy and reliability of the Danish index.

In general the reliability of the Danish labour cost index is, due to the size of the sample and the thorough search for errors which is performed, considered to be quite good. This is especially true in the case of the indices on the more aggregate level, such as for the whole business economy or the largest sectors of economic activity. For the smaller sectors of economic activity, the reliability is for natural reasons lower.

#### **5.1 Overall accuracy**

As the methods used for collection and production of the indices differ in all the countries included in the international labour cost indices, it is only possible to make any conclusions on the accuracy of the Danish index.

The overall accuracy in the case of the Danish index is mainly affected by two factors. The first relates to the general uncertainty of the index being based on a sample survey. The second factor is the completeness of the transmitted data, which often suffer from errors that can be traced back to the enterprises payroll systems and how data are registered there. Another factor that might cause inaccuracy is the enterprises transmission of data to the survey on other labour costs. The challenge here is that the information mainly is collected manually through their accounting system, and does not always entail all the information requested in the survey. Nevertheless, this last factor is considered to be of less influence on the overall accuracy than the two first ones, as the other labour costs only constitute around 5 percent of the total labour costs in Denmark. Furthermore, as the sample survey of other labour costs is stratified in a way that includes all big enterprises, the labour cost index is still considered to be quite accurate, especially at the most aggregate levels.

## **5.2 Sampling error**

There has not been produced any estimate of the sampling error of the Danish labour cost index. At the same time it is not mandatory for the EU member countries to estimate the sampling error when producing the indices.

## **5.3 Non-sampling error**

Other uncertainties are primarily linked to mistakes in enterprises reporting of components for the wages of their employees. This could for example concern components such as irregular payments, e.g. like bonuses and delayed regulations of wages. When these are not correctly registered in the payroll system of the enterprise, they can have unintentional consequences for the calculations of wages. As such, the problem is not caused by non-response, but rather errors present in the enterprises payroll systems, which can be quite difficult for the enterprises to detect. At the same time it is not always possible to detect the errors during the coarse search for errors before the production process, as it is not necessarily given that there should be payments of this kind in a given period.

## **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**

It is not possible to assess the quality on the indices included in the international labour costs, as they are all to some degree based on different collection and production methods. For information on quality of the different indices, it can be referred to the homepages of Eurostat and BLS on the subject, or the individual countries national statistical institutions.

## **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

Revisions of historical figures for EU member countries occur on a more or less comprehensive scale continuously from quarter to quarter. For more information about this it can be referred to Eurostat.

## 6 Timeliness and punctuality

The indices are normally published without any delay approximately 80 days after the turn of the quarter being measured.

### 6.1 Timeliness and time lag - final results

The indices are published approximately 80 days after the turn of the quarter being measured.

### 6.2 Punctuality

The indices are normally published on time and always follow the announced date of publication.

## 7 Comparability

In 2008 Eurostat changed from using Industry Classification NACE Rev. 1.2 to NACE Rev. 2. Because of this, there is a slight change in the data belonging to the *the private sector* starting from 2008, which was also conveyed in the publications of the statistics. Before this change, the data included the class of industries C-F according to NACE Rev. 1.2. After the change, the sectors of economic activity covered are B-N according to NACE Rev. 2.

### 7.1 Comparability - geographical

Regulation (EC) No 450/2003 of the European Parliament and of the Council of 27 February 2003 concerning the labour cost index ensures a high degree of comparability between the indices of the member countries.

### 7.2 Comparability over time

In 2008 Eurostat changed from using Industry Classification NACE Rev. 1.2 to NACE Rev. 2. Because of this, there is a slight change in the data belonging to the *the private sector* starting from 2008, which was also conveyed in the publications of the statistics.. Before this change, the data included the class of industries C-F according to NACE Rev. 1.2. After the change, the sectors of economic activity covered are B-N according to NACE Rev. 2.

### 7.3 Coherence - cross domain

The data material used to produce the Danish labour cost index is also used in the production of the *index of average earnings of enterprises and organizations* in Denmark. As a consequence the two indices are to some extent comparable. But it should be noted that the concept of labour costs used for the Danish labour cost index differ from the concept and content of hourly earnings in the index of average earnings. The estimated changes in the hourly labour costs and the hourly earnings are therefore not directly comparable.



#### **7.4 Coherence - internal**

Since the Danish labour costs stems from two different sources, the enterprises pay-roll systems and their accounting systems, data does not rest on full coherence like is the case with the index of average earnings.

### **8 Accessibility and clarity**

The indices are only published in Statistics Denmark's news release *NYT*. The international figures are not available in the Statbank. The figures and other information can instead be found on Eurostat's or BLS' homepages or databases.

#### **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**

See the homepage [Information on earnings and labour costs](#).

#### **8.5 Publications**

The indices are only published in a quarterly news release.

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

The figures are not published on Statistics Denmark's Statbank page. Instead the figures can be found in the [Eurostat database](#) and the [BLS database](#).

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

Not relevant in relation to the international labour cost indices.

#### **8.8 Other**

For the European figures, see [Eurostat database](#). For U.S. figures see [BLS database](#).

### **8.9 Confidentiality - policy**

Not relevant in the case of the international labour cost indices.

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

Not relevant in relation to the international labour cost indices.

### **8.11 Documentation on methodology**

For more documentation of how the indices are produced, see the quality declaration of the [index of average earnings](#) and the [publication on calculations of indices](#) made by Statistics Denmark (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 Earnings and Absence. The person responsible is Uwe Pedersen, tel.: +45 3717 3424, e-mail: [uwp@dst.dk](mailto:uwp@dst.dk)

### **9.1 Contact organisation**

Statistics Denmark

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