STATISTICS DENMARK

Documentation of statistics for Indices of Earnings for the Public Sector 2017 Quarter 4

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1 Introduction

The purpose of the index is to indicate trends in wages paid in the public sector (central and local governments) analyzed by main sectors of economic activity. The index covers more or less all employees in the public sector, including salaried employees, apprentices and young employees under the age 18. Data are mainly extracted from the public pay transfer systems and refer to the second month in the quarter of interest. The published index is broken down by main sectors of economic activity (38-grouping of NACE rev. 2), and indicate trends in relation to the basic quarter (first quarter of 2005) and in relation to the same quarter of the previous year. Since the release of the third quarter of 2008 there has been a change in the base period of the index, which is now the first quarter of 2005.

2 Statistical presentation

The index is based on information on wages obtained from more or less all employees in the public sector. Data are mainly extracted from the public pay transfer systems and refer to the second month in the quarter of interest. The published index is broken down by main sectors of economic activity (38-grouping of NACE rev. 2), and indicate trends in relation to the basic quarter (first quarter of 2005) and in relation to the same quarter of the previous year.

From the first quarter of 2013 a new delimitation regarding the categorizing of sectors (state, regional, municipal or private) came into force. The new sector delimitation now follows the same principles as the one applied for the national accounts. The previous delimitation of sectors is available until the fourth quarter of 2013.

This documentation of statistics relates to the index of average earnings with the base period 1. quarter of 2005=100. The documentation of statistics with the base period 1. quarter of 1995 is attached as an annex.

2.1 Data description

The index of average earnings shows the development of the total wage per hour for employees working for the government, regional- or municipal authorities. The index of average earnings covers the total wage paid inclusive of both the employer's and employee's contributions to the pension scheme, but exclusive of holiday payments and other irregular payments, such as bonuses. The total wage paid is, as a principle, measured against the number of hours actually worked.

All publicly employed persons, including apprentices and young people under the age 18, are included in the statistics. Nevertheless, some groups of employment are not covered, such as young people employed under specific work arrangements or people with disabilities that only work part-time or are compensated to some extent. In addition, employment groups such as military personnel under conscription, municipal counselors etc.

With respect to the index on state employees for the 1st and 2nd quarter of 2015, it should be mentioned that the index due to data quality issues, does not include data on employees from the Church of Denmark. Work is in progress to resolve the issue so that data on these employees are once again included in the index for the 3rd quarter of 2015.

2.2 Classification system

The index is published for different groups of industry in accordance with Statistics Denmark's 10-, 19- and 36-standard groupings of industries, see Danish Industrial Classifications 2007. The Danish Industrial Classification is based on Eurostat's classification system NACE Rev. 2.

2.3 Sector coverage

The sector *public government and services* include all employees in government-, regional- or municipal administration. The delimitation of what belongs to the different sectors follows the same principle as the delimitation used for the national accounts.

2.4 Statistical concepts and definitions

Wage: Remuneration paid in cash by the employer to the employee for work done

Industrial classification: Categorizing of companies into groupings of economic activity.

Payments for holidays: Extra payments paid by the employer to the employee for holidays. The payment is often computed as a fraction of the monthly wages.

Wages and Salaries: Information on wages and salaries for all employees working in the public sector.

Hours Worked: Hours worked is the number of hours the employee

Total wages: Total wages and salaries in cash, including employees' or employers' share of any pension contributions, excluding payment for days not worked due to holidays etc. and other irregular payments.

Total earnings per hour worked: Total earnings per hour worked, excluding payments for absence or due to holiday and other irregular payments.

Payments for pension schemes: The employers and employees contribution to the pension schemes.

Irregular Payments: Payments received on an irregular basis , including e.g. bonuses, regulation of wage, compensation for not holding vacation, etc.

Enterprise: An enterprise is a company or organisation involved in economic activity e.g. by producing and selling products.

2.5 Statistical unit

The counting unit is the individual employment of a person in public administration or services (government, regional- or municipal authorities).

2.6 Statistical population

The statistical population is all employees working in the Danish public sector.

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2.7 Reference area

The index of the average earnings of public administration and services covers workers employed in the public sector in Denmark.

2.8 Time coverage

First quarter of 2005 to fourth quarter of 2017.

2.9 Base period

First quarter 2005 is the base period, where the value of the index is equal to 100.

2.10 Unit of measure

The unit of measure is the index points.

2.11 Reference period

The census date is a pay period (month or 2-week period) in the second month of a quarter.

2.12 Frequency of dissemination

The statistics are published quarterly.

2.13 Legal acts and other agreements

The Act on Statistics Denmark § 6 and § 8. Information obtained from the quarterly data collection with respect to wages and hours of work is used in the statistics on earnings and employment compiled by the EU. In particular it can be referred to the Regulation (EC) No 450/2003 of the European Parliament and of the Council concerning the labour cost index for more information.

2.14 Cost and burden

Data is extracted from the public pay transfer systems. Consequently, the respondents (institutions, municipalities and counties) are not directly involved in reporting data, apart from being responsible for maintaining a few variables in the pay system.

2.15 Comment

Other information is available at the subject page on Earnings and Labour costs.

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3 Statistical processing

Data are collected for more or less all persons employed in the public sector in Denmark and refer to the second month of the quarter in interest. Before production of the index is started, the data are roughly searched for errors. But there are also performed search for errors later in the process, e.g. by looking at the rate of increase in the average wages for each company or organisation. Each employment is given a weight after the share of hours worked in relation to a full-timer's normal hours, which is used when adding observations to calculate the rate of increase for an enterprise or branch of economic activity.

3.1 Source data

Data is primarily collected from the public pay transfer systems. Also, a small number of enterprises for the public sector transmit data through their own IT-systems for payroll administration.

3.2 Frequency of data collection

Data is collected quarterly, although only information for the second month is used in calculating the index.

3.3 Data collection

Data is transmitted from the public pay transfer systems by the use of a so-called system-to-system method. Information on earnings for government employees is delivered from the Agency for Modernisation under the Ministry of Finance, as well as the Defense Command Denmark (Forsvaret) and Silkeborg Data. Data on regional and municipal employees are mainly sent from the Office of Earnings for Regional and Municipal employees (KRL). Besides that, data is also obtained from some smaller enterprises through their own IT-systems for payroll administration.

3.4 Data validation

A search for errors is performed with the use of an upper and lower limit of the average earnings per hour worked. The limits are calculated at the start of each year by finding the average increase in earnings from last year and adding these to the old limits. If the observations do not fall within these limits they are removed from the dataset going into production. This validation is necessary as it makes sure that extreme observations do not distort the results. Another validation performed on the dataset later in the process, is of the rate of increase in average earnings for enterprises/institutions or class of industries are either too high or too low. If this occurs, it is checked whether this is caused by large changes in the composition of labour in an enterprise or class of industry as a whole. The respective enterprises are either removed or analyzed further. This is done as the purpose of the index is to depict real changes in what employees receive and not the changes in earnings resulting from changes in labour composition.

3.5 Data compilation

When data is received it is validated as described under Data validation. The average earnings for each observation is weighted according to his/her share of working time in relation to a full-timers working time. A full-timer is weighted as 1, while a part-timer working half the time compared to a full-timer is weighted as 0.5. Since the index more or less covers all employees in the public sector, there is made no correction for fall-out of observations.

3.6 Adjustment

Only enterprises that have transmitted data that can be used in both the quarter being measured and the previous quarter are included in the calculations of the index. This means that whenever data from an enterprise is omitted due to quality issues in a certain quarter, the enterprise will as a minimum first be included in the index after the preceding quarter.

4 Relevance

Private enterprises and organizations in Denmark and abroad, and ministries and other public institutions are the most frequent users of the index. The index is especially used in relation to regulation of contracts. In addition to that, the index plays a vital part in the wage negotiations of employees in the public sector.

4.1 User Needs

Users of the index are mainly ministries, municipalities, institutions and employee and employers organisations. Along with the index of earnings of the private sector, the public index is used in adjusting the earnings of government employees. Also, the index is used as a benchmark in contract regulation.

4.2 User Satisfaction

Based on the number of viewings at https://www.dst.dk and at http://www.Statbank.dk and other more direct inquiries, the user satisfaction is considered to be very high. Every second year, a more detailed discussion of the methodological issues behind the index are held at one of the meetings of the contact committee. At these meetings the most central user representatives are present and there is a large interest on the different indices of average earnings published by Statistics Denmark.

4.3 Data completeness rate

There are no national regulations or guidelines for the index.

5 Accuracy and reliability

Since the index is based on information on wages obtained from more or less all publicly employed persons through public pay transfer systems, the accuracy and reliability of the index is considered to be high. At the same time, there are some small uncertainties regarding the index which it is a good idea to be aware of when applying the index.

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5.1 Overall accuracy

The index is based on data for almost all employees in the state, regional- or municipal authorities. Data are mainly collected through public pay transfer systems, but a part of the data are received through smaller pay transfer systems of private enterprises. The overall accuracy is considered to be rather high as the data are collected through reliable and well-functioning systems for transmission, and because the data cover a large portion of the statistical population.

5.2 Sampling error

The indices are based on data extracts covering all government employees. Consequently, the indices are not subjected to sampling errors.

5.3 Non-sampling error

There is a possibility of uncertainty in the understanding and reporting of the concepts wages and hours worked in the received data. Furthermore, these has been some challenges concerning data received from the municipal authorities, as many of these have changed the payroll system for transfer. Problems like these are continuously discussed with the people or institutions involved to ensure that the data contain the highest possible quality.

In addition to the above uncertainties, there are also some challenges in connecting data of state employees with the Business Registers to collect the right information on which sectors of economic activity and what part of the public sector the person is employed in. This is partly caused by poor quality in the reporting of the production number of the local unit where the person is employed, and due to misplacements of regional or municipal employees in economic sectors based on their placement in a city- or regional hall, although their work function is not administrative. Statistics Denmark continuously work to improve these errors and uncertainties by using available administrative information obtained from the collected data, like e.g. information on users id and occupation code.

There exists no number of the uncertainty.

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

All in all, the index is considered to be of a high quality. Data are mainly collected through the public pay transfer systems and normally contain few errors or missing values. Data have been improved over time as Statistics Denmark on a continuous basis has tried to correct for errors by taking advantage of the information available through the administrative systems. In addition, Statistics Denmark has also made sure to contact the respective enterprises submitting data with errors, to make sure the enterprise make corrections for future transmissions. Still, there are some uncertainties present that can have an impact on the quality of the data. For example, there has been a problem in linking the right branch of economic activity and placement in the public sector to an observation. This ultimately can have an impact on the quality if not corrected for. Read more about uncertainties under the section of *Non-sampling error and A4*.

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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

There exists no practice of revision of earlier results.

6 Timeliness and punctuality

The index of average earnings is published approximately 45 days after the end of the quarter in question. The punctuality of the publication is considered high and there has been no delays of any kind during the last years.

6.1 Timeliness and time lag - final results

The index of average earnings is always published as finite figures. Therefore, there are never any publications of temporary numbers at any time.

6.2 Punctuality

The punctuality is in general quite high, and delays in the publication of final numbers seldom happen.

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7 Comparability

Improvements in the index are continuously being made. If major errors have been rectified, the index has, as far as possible, been revised back to the first quarter of 1995 when calculations of the index began. From the first quarter of 2013 a new delimitation of sectors (state, regional, municipal or private) has been applied. Hence causing a breach in the data between the fourth quarter of 2012 and the first quarter of 2013. *The index of average earnings in the public sector* is comparable and in many ways similar to the *index of average earnings for Corporations and Organisations*. Internationally, the index is to some degree comparable to wage indices of the public sector in other countries.

7.1 Comparability - geographical

The index of average earnings can to some extent be compared to other similar indices abroad. It should be highlighted that there normally are quite big differences in the methodology behind the indices, and therefore they are not fully comparable.

7.2 Comparability over time

The *index of average earnings for public administration and services* replaces the *index of average earnings in the public sector*, which was published for the last time for the fourth quarter of 2013. The comparability of the two indices is quite high. The difference has to do with the new applied delimitations of the sectors, where some of the public owned enterprises, such as Danish Railways (DSB) and some of the municipal owned resource centers, now according to the new delimitations of the sectors belong to "the index of average earnings of Corporations and Organisations". The new sector delimitation was applied starting from the first quarter of 2013, which means that there is a breach in the data at this point. The figures for the *index of average earnings for public administration and services* and the*index of average earnings in the public sector* are therefore identical before 2013.

Improvements in the index are continuously being made. If major errors have been rectified, the index has, as far as possible, been revised back to the first quarter of 1995 when calculations of the index began.

7.3 Coherence - cross domain

The indices are comparable with the corresponding *index for corporations and organisations*.

7.4 Coherence - internal

The index is based on a single data source and so there are no internal inconsistency.

8 Accessibility and clarity

The newest figure for the *index of average earnings for public administration and service* is published n a news release (called NYT) by Statistics Denmark as well as on the subject page on Earnings and Labour costs. Furthermore, the index is also used and published in the Statistical Ten-Year review and the Statistical Yearbook.

More detailed figures can also be found in Statbank.

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. Theme publications etc. may be published at other times of the day. The National Statistician can decide that such publications may be released before their official publication time, e.g. to the media and other stakeholders.

8.4 News release

The index is published in a news release for each quarter and published on the subject page on Earnings and Labour costs.

8.5 Publications

The index of average earnings for public administration and services are presented in both the Statistical Ten-Year review and the Statistical Yearbook.

8.6 On-line database

More detailed figures are also available in Statbank.

8.7 Micro-data access

Scientists do not have access to the micro data. Still, the primary data is available at the level of individuals. Consequently it is possible to define special projects, order customized compilations etc against a fee. However, because the data only cover some class of industry the possibility of breakdown of estimates on various subgroups is limited. It should also be noticed that the searching for errors in the dataset is done at exactly those levels of classifications that are being published. For these reasons, when faced with a customized order, Statistics Denmark always assess whether or not to accept the order by taking into account the amount of resources necessary to complete the job and the quality of the data material in question.

8.8 Other

The data material is also used to produce the Danish figures in the European Labour Cost Index (LCI).

8.9 Confidentiality - policy

The production of the index does in general follow the data privacy policy of Statistics Denmark. To learn more more about the policy, read the page on data confidentiality.

8.10 Confidentiality - data treatment

The production of the index does, in general, follow the data privacy policy of Statistics Denmark. To learn more more about the policy, read the page on data confidentiality.

8.11 Documentation on methodology

For more information it can also be referred to the publication “Indeksberegninger I Danmarks Statistik” where a more thorough explanation of the methodology can be found.

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 are in the division of Personal Finance and Welfare. The person responsible is Hege Susanne Hauglund, tel. +45 39 17 34 23, email: hsu@dst.dk

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