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Quality Report on the Norwegian Structure of Earnings Survey 2006

Reports This series contains statistical analyses and method and model descriptions from the different research and statistics areas. Results of various single surveys are also published here, usually with supplementary comments and analyses.

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	Category not applicable	.
	Data not available	..
	Data not yet available	...
	Not for publication	:
	Nil	-
ISBN 978-82-537-7599-9 Printed version	Less than 0.5 of unit employed	0
ISBN 978-82-537-7600-2 Electronic version	Less than 0.05 of unit employed	0.0
ISSN 0806-2056	Provisional or preliminary figure	*
Subject: 06.05	Break in the homogeneity of a vertical series	—
Print: Statistics Norway	Break in the homogeneity of a horizontal series	
	Decimal punctuation mark	.

Abstract

This report is a slightly altered version of the quality report that accompanied the data on the Norwegian Structure of Earnings survey 2006 forwarded to Eurostat. The statistics, data and quality reporting are regulated legally through council and commission regulations. The following report is built up and formulated to adhere to the commission regulation (EC) 698/2006 implementing council regulation (EC) 530/1999 as regards the quality evaluation of the structural statistics on earnings. The variables in the report are those defined in the commission regulation (EC) 1738/2005, which covers the definition and transmission of structural statistics on earnings and labour costs.

The report only covers the aspects regulated by the aforementioned regulations, and does not venture into any documentation or analysis of the results from the statistics.

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1. Introduction

This report covers all the main points related to quality that are normally covered and commented on in connection with the publication of statistics, and in this case statistics on earnings. The aim is to supply information on the quality of the data and statistics from Norway that are reported to and distributed by Eurostat in connection with the Structure of Earnings Survey 2006. Hopefully this report will be of use for statistical institutions, researchers, and other users of the earnings statistics.

Since the national statistics on earnings are the same as those forwarded in connection with the survey mentioned above, this report should also be of interest to users of national statistics on earnings published on Statistics Norway's website.

2. Relevance

The purpose of the statistics is to provide an overview of levels and changes in earnings for all employees (wage and salary earners) independent of industry or working hours, and in accordance with user needs. Statistics are provided for each industry separately, broken down by sex, occupational group, age, and educational level in order to meet the demands of public and private users.

Major users outside Statistics Norway are the Technical Reporting Committee on the Income Settlement, research and policy institutes, employee and employer organisations, Eurostat, ILO, OECD, the media, enterprises, and private persons. The statistics are also used in Statistics Norway's Labour Accounts and in quarterly wage indices.

Based on the extensive use and feedback concerning Statistics Norway's earnings statistics, it is generally perceived that the statistics meet most user needs. Expressed needs for more statistics from the source are always an integral part of planning annual work programmes within the field.

3. Accuracy

3.1. Sampling errors

The statistics are constructed by compiling several separate sample surveys. All of these surveys are subject to possible errors due to the sampling methods applied, the quality of the reporting and the quality of the source used as population.

The populations for all surveys on earnings are based on the Norwegian Central Register of Enterprises and Establishments. All enterprises with local units that have employees in the reference period are included as the population. The sample in each survey is limited by use of cut-off, which varies between industries (see chapter 3.1.1.3 Bias).

3.1.1. Probability sampling

All of the aforementioned surveys are based on stratified random sampling of clusters (sampling unit), where the clusters are defined as enterprises and their local units by section according to Nace rev. 1. Education (section M) and Health and social work (section N) industries in particular include both private enterprises and public enterprises. The latter are included in full, not as a sample.

Weights are calculated by use of post stratification procedures, calculating the inverse inclusion probability, the aim being to estimate how many employed persons there are in the population in the reference period. The main aim is of course by using weights to make it possible to estimate earnings of the population.

3.1.1.1. Stratification

The variables used for stratification are industry and number of employees. As previously stated, each of the industries presented below, as rows in the table, represent a separate survey in the national earnings statistics. The stratification is different for each industry when defining size groups of enterprises and sub-groups of industry. The reason for this is that the distribution of small and large enterprises is different between industries, and furthermore that what can be called large may vary a great deal from one industry to another.

These properties and arguments are especially important if the level and distribution of earnings are actually different from one stratum to another within the same industry (more information in chapter 3.2.5).

Table 3.1. Population and sample SES 2006

	Population	Sample	Relative sample size
Total for all surveys			
Enterprises	50 265	15 739	31.3
Local units	76 925	39 067	50.8
Employees	1 487 682	1 071 127	72.0
C Oil and gas extraction, mining			
Enterprises	319	142	44.5
Local units	449	266	59.2
Employees	35 836	32 000	89.3
D Manufacturing			
Enterprises	5 811	1 621	27.9
Local units	7 203	2 816	39.1
Employees	236 087	159 276	67.5
E Electricity supply			
Enterprises	263	50	19.0
Local units	641	230	35.9
Employees	13 673	6 892	50.4
F Construction			
Enterprises	5 444	1 216	22.3
Local units	6 023	1 785	29.6
Employees	112 096	60 337	53.8
G Wholesale and retail trade			
Enterprises	14 912	4 593	30.8
Local units	25 454	12 982	51.0
Employees	291 731	170 105	58.3
H Hotels and restaurants			
Enterprises	4 670	970	20.8
Local units	5 829	2 013	34.5
Employees	74 979	40 980	54.7
I Transport and communication			
Enterprises	3 059	933	30.5
Local units	4 584	2 402	52.4
Employees	126 312	103 346	81.8
J Financial intermediation			
Enterprises	678	513	75.7
Local units	2 377	2 208	92.9
Employees	42 329	41 203	97.3
K Real estate, and business services			
Enterprises	7 483	2 099	28.1
Local units	9 783	4 086	41.8
Employees	186 456	123 450	66.2
M Education			
Publicly maintained schools			
Enterprises	512	512	100.0
Local units	4 336	4 336	100.0
Employees	124 707	124 707	100.0
Private education			
Enterprises	648	298	46.0
Local units	821	429	52.3
Employees	13 719	9 629	70.2
N Health and social work			
Public hospitals			
Enterprises	37	37	100.0
Local units	776	776	100.0
Employees	109 588	109 588	100.0
Private health and social work			
Enterprises	3 370	1 308	38.8
Local units	4 330	2 138	49.4
Employees	67 915	49 208	72.5
O Social and personal service activities			
Enterprises	3 059	1 447	47.3
Local units	4 319	2 600	60.2
Employees	52 254	40 406	77.3

Table 3.2. Number of strata used in sampling from the population

Industry	Number of strata
Total	186
C Oil and gas extraction. mining	6
D Manufacturing	38
E Electricity supply	3
F Construction	9
G Wholesale and retail trade	9
H Hotels and restaurants	15
I Transport and communication	24
J Financial intermediation	4
K Real estate. and business services	36
M Teaching staff. private education	3
N Private health and social work	3
O Social and personal service activities	36

Several new subgroups were established within some industries to improve coverage in sub-populations. This explains an increasing number of strata for those industries compared to the Quality report on the Norwegian Structure of Earnings Survey 2002 (see chapter 3.2.1. Coverage errors).

3.1.1.2. Estimation of weights

Below, all comments on population refer to the population as it is found and defined by use of Norway’s Central Register of Establishments and Enterprises, for the relevant industries.

Notation

- i* Individuals (analyses unit)
- a* Enterprises (sampling unit)
- b* Sampling strata
- K_b Number of enterprises in strata *b*
- k_b Number of enterprises in sample from strata *b*
- N Total number of employees in the population
- n* Number of employees in the sample
- w_b^* Inverse sample probability
- w_b Final post-stratified adjusted weight (The final strata *b* as given after post stratification do not necessarily correspond with strata used when sampling.)
- w_{ai} Final weight for individual *i* in enterprise *a*

The weights in the Norwegian Structure of Earnings Survey are defined as:

1) $w_b = w_b^* \frac{N_b}{\hat{N}_b}$ where $i \in a \in b$ and s_b is the sample of enterprises in stratum *b*.

w_b^* is the inverse inclusion probability defined as 2) $w_b^* = \frac{K_b}{k_b}$, for all $a \in b$.

Thus $\sum_{a \in s_b} w_b^* = \sum_{a \in s_b} \frac{K_b}{k_b} = k_b \frac{K_b}{k_b} = K_b$ and as such gives an estimation of the number of enterprises in a strata *b* in the population.

The preferred ideal for the weights in the earnings statistics is to be able to express

$$\sum_{a \in b} \sum_{i \in a} w_{ai}^* = \hat{N}_b$$

Post-stratification procedures to establish w_b are initiated

when $\frac{N_b}{\sum_{a \in b} \sum_{i \in a} w_{ai}^*} = \frac{N_b}{\hat{N}_b} \neq 1$. This implies that we wish the final weights to give an

estimate on the number of employees in the population. The final weights can therefore be described as:

$$3) \quad w_b = w_b^* \frac{N_b}{\hat{N}_b} = w_b^* \frac{N_b}{\sum_{a \in b} \sum_{i \in a} w_{ai}^*} = \frac{K_b}{k_b} \frac{N_b}{\sum_{a \in b} \sum_{i \in a} \frac{K_b}{k_b}} = \frac{K_b}{k_b} \frac{N_b}{\frac{K_b}{k_b} n_b} = \frac{N_b}{n_b}$$

where $i \in a \in b$

A further inspection of the weights can be done through a comparison with other sources. This is covered in chapter 6 but comments here are ment to give an example of how the weights rearrange the distribution of the non-weighted figures.

Table 3.3. Relative distribution of employees in the SES weighted and non-weighted by industry, comparison with National Accounts and LFS, 2006¹

	SES 2006		NA, q3 2006	LFS, q3 2006
	Non-weighted	Weighted		
Industry				
Total	100	100	100	100
C-D Oil and gas extraction, mining, manufacturing	18.1	17.4	16.3	16.2
E Electricity supply and water supply	1.0	0.8	0.6	0.9
F Construction	5.5	8.4	8.9	8.9
G-H Wholesale and retail trade, hotels and restaurants	18.5	24.1	22.2	22.1
I Transport and communication	9.3	9.0	10.2	8.2
J Financial intermediation	4.1	2.8	2.5	2.8
K Real estate, and business services	11.3	13.6	14.0	14.0
M Education	13.3	8.2	9.3	9.7
N Health and social work	15.6	10.8	10.6	11.9
O Social and personal service activities	3.3	4.8	5.5	5.2

¹ As from 2006 the age limit to participate in the LFS was lowered from 16 to 15 years. At the same time the definition of age was changed from completed years at the end of the year to completed years at the time of the reference week.

It is clear that the final weighted distribution of the SES has a closer resemblance to the distributions found in the National Account (NA) and the Labour Force Survey (LFS)¹. This does not prove the accuracy of the weights as far as estimation of earnings is concerned, but the improvement of the distribution caused by the weights is a claim that they at least make for a better understanding of the actual composition of the population. Furthermore, there are some differences between these statistics that may explain the last discrepancies between weighted SES figures and the NA or LFS. For more information on this please consult chapter 6.

3.1.1.3. Bias

The statistics on earnings are, as with all other sample based statistics, subject to bias, which arises when the distribution on some variables in different parts of the sample is not the same as the corresponding distribution in the population. Dividing the population into groups (strata) according to certain stratification variables reduces the possibility of imbalances in the sample. Partial non-response in several of the items collected by form and used in the wage statistics can normally be logically calculated on the basis of other information given on the form or imputed from earlier years.

¹ In order to maintain comparability between NA, LFS and Structure of earnings, municipal enterprises for health and social work industry are extracted from NA and LFS data.

Post-stratification adjusts any imbalances arising in the distribution between the stratification variables due to non-response. The weights are additionally adjusted for any imbalances due to non-response.

Non-response that is not randomly distributed may bias the separate samples for the different sections, and this may have some influence on these statistics. Non-response in the wage statistics is between 0.1 and 13.3 per cent. Possible sample bias in the individual statistics will be of less importance for these statistics due to the considerable quantity of data it is based on (table 3.6b).

The use of cut-off may be a source of bias. In most industries, the sample consists of sampling units with five or more employees. Exceptions are Hotels and Restaurants (H), Financial Intermediation (J), Business Services (K), where cut-off is set to 3 or more employees and Social and personal service activities (O) with a lower limit of 4 or more employees for inclusion in the sample.

3.1.1.4. Variance

Variance of interest in this case is variance that arises due to the size and composition of the sample, more specifically the sampling model, so-called sample variance. Statistics on earnings make use of random sampling of clusters (enterprises by industry), however the samples are large and this therefore results in relatively low variance. (See also chapter 8.1). The coefficient of variance varies theoretically between 0 and 1, and is in some cases used as a percentage. A low value presents the argument that very little of the variance derives from the sample (see also appendix A).

Table 3.4. Coefficient of variance for monthly earnings of full-time employees in the SES, by industry

Industry	Males and females Coefficient of variation
C Oil and gas extraction, mining	0.02
D Manufacturing	0.01
E Electricity supply	0.02
F Construction	0.01
G Wholesale and retail trade	0.01
H Hotels and restaurants	0.02
I Transport and communication	0.04
J Financial intermediation	0.02
K Real estate, and business services	0.03
M Private education	0.01
N Private health and social work	0.02
O Social and personal service activities	0.03

3.1.2. Non-probability sampling

Not applicable

3.2. Non-sampling errors

3.2.1. Coverage errors

The population consists of all enterprises in Statistics Norway's Central Register of Establishments and Enterprises, with the exception of small enterprises with fewer than three, four or five employees according to industry. Each enterprise covers one or more local units grouped by industrial category. The sample in each section consists of enterprises drawn from the population, dependent on activity code and the number of employees. The wage statistics data are obtained for each person employed in the local units in the reference period covered in the industrial sectors according to Nace.

Errors in the stratification variables, activity (Nace Rev. 1) and number of employees in the frame population could be a source of errors. Additionally, actual differences between the population and the sample may lead to problems such as over-coverage or under-coverage in sub-populations.

In order to deal with this potential problem, the local units in the sample are asked to control the pre-printed code of activity on the form. If this code is believed to be incorrect, the local units are asked to describe their activities in order to correct this code. In each specific case, this information is assessed in order to come up with a correct classification of the unit.

In the wage statistics, some under-coverage may be expected due to a time lag in the registration of new units in the Central Register of Establishments and Enterprises. Over-coverage may also be present for the same reason, i.e. the time lag in the registration process when enterprises no longer have employees because the business has been closed, sold or taken over by new owners, has gone bankrupt or has been merged in the time period between the selection of the sample and the time of the census. As long as these errors are fairly constant, the effect on the statistics is minimal.

3.2.2. Measurement errors

Measurement errors are defined as a discrepancy between the value of a variable reported by the respondent and the "true" value. Such errors mainly arise because the respondent lacks the information or finds it difficult to calculate the value. This may be due to the following:

- In his daily work, the respondent uses other unit definitions than those used as a basis for the statistics for example other payment periods
- The respondent does not have the information that is requested
- The respondent himself has incorrect information
- The respondent misunderstands or fails to read the instructions. The respondent may misinterpret the content of the variables, or is imprecise in checking off on the form that will be read optically

However, the increasing use of the electronic standard for reporting statistics has reduced the amount of measurement errors in reporting. This standard basically retrieves wage data directly from the enterprises' wage and personnel systems, thus eliminating several possible sources of error that arise when using traditional forms. On the other hand, new problems arise when making use of new methods of collection and processing. In general however, these problems have been more easily identified and corrected when making use of electronic solutions in data collection and processing.

Measurement errors are identified and corrected both by logical, automated computer controls, as well as manual checks of extreme outliers and conspicuous changes in wage levels, and number of employees in the enterprises, compared to the previous years.

Table 3.5. Distribution of collected observations by source. Per cent by industry, 2006

Industry	Spread-sheets	Internet portal	Electronic		
			Electronic standard	Manually filled forms registration	Optical registration
Total	7.8	3.2	76.0	1.7	11.3
C Oil and gas extraction, mining	6.3	1.0	88.5	2.2	2.0
D Manufacturing	7.1	2.7	81.2	0.9	8.0
E Electricity supply	0.0	0.5	93.8	0.0	5.7
F Construction	13.8	5.1	64.8	2.0	14.2
G Wholesale and retail trade	7.9	4.1	64.7	2.8	20.5
H Hotels and restaurants	4.9	4.7	65.5	3.4	21.5
I Transport and communication	7.2	2.1	84.2	1.3	5.2
J Financial intermediation	7.7	1.3	82.8	1.5	6.6
K Real estate, and business services	17.3	4.1	65.6	2.3	10.7
M Teaching staff. private education	9.3	13.2	41.2	5.6	30.7
N Private health and social work	1.7	1.4	90.2	0.3	6.4
O Social and personal service activities	8.6	9.3	53.2	3.0	25.9

3.2.3. Processing errors

Processing errors are errors that can arise during the course of computer processing the reported data from the respondent and up to the point the statistics are completed. This applies to factors such as data transmission, registration, encoding, and error correction. Reported forms are registered either optically or manually, while electronically reported data are either downloaded to the database through internet portal for public reporting (Altinn) or entered directly into the tables where data information is compiled.

3.2.4. Non-response errors

3.2.4.1. Unit non-response

Unit non-response refers to the fact that the respondent, in this case an enterprise, has not completed and returned the statistics questionnaire. In the statistics, the unit non-response is between 0.1 and 13.3 per cent (table below). The main reasons for non-response are that units have ceased to exist, been sold or transferred to a new owner, gone bankrupt or have been merged. Furthermore, there is also a small group reporting too late to be included in the statistics, or providing data of a quality that cannot be used for statistical purposes. In the case of unit non-response, the weights of the units on which the statistics are based are adjusted to compensate for the non-response.

Imputation is only done for the variable occupation.

Table 3.6a. Imputation rate of occupation, by industry

Industry	Per cent
Total	3.5
C Oil and gas extraction, mining	0.0
D Manufacturing	0.0
E Electricity supply	0.0
F Construction	0.4
G Wholesale and retail trade	19.6
H Hotels and restaurants	0.0
I Transport and communication	0.7
J Financial intermediation	0.0
K Real estate, and business services	0.9
M Teaching staff, private education	0.2
N Private health and social work	0.0
O Social and personal service activities	0.4

Table 3.6b. Response rate by industry

Industry	Per cent
Total	94.3
C Oil and gas extraction, mining	99.1
D Manufacturing	98.7
E Electricity supply	94.8
F Construction	95.1
G Wholesale and retail trade	91.0
H Hotels and restaurants	86.7
I Transport and communication	94.4
J Financial intermediation	99.9
K Real estate, and business services	93.8
M Teaching staff, private education	92.6
N Private health and social work	93.0
O Social and personal service activities	90.6

3.2.4.2. Partial non-response

In the case of methods making use of clusters as sampling units, it is necessary to make distinctions between two types of partial non-response. The first and most typical type of non-response for a sample survey is that the sample unit, enterprise in this case, has not reported all employees. The second major type of non-response would be the traditional type, where elements of information regarding the unit of analysis are missing. Some of the items can often be calculated on the basis of other information and possibly imputed from previous years.

3.2.5. Model assumption errors

Statistics Norway has chosen to use September and October as the reference months for the annual wage statistics. These months are believed to be less affected by holidays and the most stable regarding wages and therefore also considered as representative.

The accounting and fiscal year is identical to the calendar year in Norway. Hence, this is not subject to any errors regarding the wage statistics.

The sample model used for all sections is based on stratified samples. Dividing the population into groups (strata) according to certain stratification variables reduces the possibility of imbalances in the sample and assures a better coverage of certain units or groups of units in the wage statistics.

The sample consists of enterprises drawn from the population. The population is basically all active enterprises in the section, with the exception of small enterprises with fewer than five/three employees, which are not included in the sample. Large enterprises (sample units), where the definition of large varies between industries, receive a sampling probability of 1. Strata that cover small and medium-sized sample units are given a lower sampling probability.

The stratification is made according to industry and the size (number of employees) of the enterprises, on the assumption that wages and composition of occupations in large enterprises differ from those in small ones, and that there are differences according to industry. In each stratum, this sample model ensures a minimal dispersion in the main variables measured, i.e. wage.

The number of employees is an important feature with regard to the stratification. Some assessment of this size is made through to the sampling process and serves as guidance for ongoing improvement. In each stratum, the mean number of employees is calculated along with the standard deviation. This is done to ensure an optimum stratification that reflects the differences between the strata.

The different products in the wage statistics are separated according to section. Each section in the wage statistics represents one part of the total population, and these are therefore also to be considered as a part of the stratification. This stratification ensures that each section is fully covered, and that no major enterprises are missed out. Also the coverage of other related sections is ensured through this model.

By collecting individual employees with person identification numbers it is possible to add information from administrative sources. The quality of these identification keys is stressed both in the questionnaires and in the administrative data and reduces the relative level of errors to a minimum.

The purpose of the sample model selection process is basically to get samples that ensure a representative basis for the wage statistics and avoid burdening all enterprises in the industry with forms to fill in. This limits the size of the samples while focusing on main variables. Another objective is to ensure that the burden of reporting obligations is minimized as much as possible for the smallest enterprises. Statistics Norway likes to believe that all these purposes are well fulfilled. In additionally the effects of any known and unknown model errors are reduced to an acceptable minimum through the use of this model.

4. Timeliness and punctuality

The reference period for the surveys is 1 September for sections G, J and K and 1 October for the remainder. The statistics are collected by way of the mandate given through "The Statistics Act of 1989", which for the statistics presented here makes response mandatory.

Key dates in the data collection process:

1 September:

- Questionnaires sent: 18 August 2006
- Date for delivery: 15 September 2006
- First reminder: 3 October 2006
- New date for delivery: 13 October 2006
- Second reminder: 23 October 2006
- Final date for delivery: 1 November 2006

1 October:

- Questionnaires sent: 28 September 2006
- Date for delivery: 16 October 2006
- First reminder: 24 October 2006
- New date for delivery: 2 November 2006
- Second reminder: 9 November 2006
- Final date for delivery: 20 November 2006

In addition to the forms, large enterprises are phoned during this period to ensure that the questionnaires are returned. The post-collection phase begins as soon as questionnaires are received. Working deadlines are set as the process takes place, and in accordance with priorities given by the pre-planned list for publication. There are no given and explicit deadlines for the different elements in the post-collection phase, except for the final deadline; the statistics for the different sections are finished and approved one week prior to the publishing dates.

The wage statistics for all employees 2006 were published on 8 June 2007. These statistics are produced by using the wage statistics for several industrial sections with the following publishing dates:

- Section C. Employees in oil and gas extraction and mining. Published 19 January 2007.
- Section D. Employees in manufacturing. Published 16 February 2007.
- Section E. Employees in electricity supply. Published 22 May 2007.
- Section F. Employees in construction. Published 2 February 2007.
- Section G. Employees in wholesale and retail trade. Published 20 December 2006.
- Section H. Employees in hotels and restaurants. Published 8 March 2007.
- Section I. Employees in transport and communication. Published 23 February 2007.
- Section J. Employees in financial intermediation. Published 1 December 2006.
- Section K. Employees in real estate and business activities. Published 8 December 2006. Corrected version published 24 January 2007.
- Section M. Employees in Teaching staff, private education. Published 7 March 2007.
- Section N. Employees in Private health and social work. Published 15 March 2007.
- Section O. Employees in Social and personal service activities. Published 16 March 2007.

5. Accessibility and clarity

References to the statistics:

- All employees:
http://www.ssb.no/english/subjects/06/05/lonnansatt_en/arkiv/
- Section C:
http://www.ssb.no/english/subjects/06/05/lonnolje_en/arkiv/
- Section D:
http://www.ssb.no/english/subjects/06/05/lonnind_en/arkiv/
- Section E:
http://www.ssb.no/english/subjects/06/05/lonnkraft_en/arkiv/
- Section F:
http://www.ssb.no/english/subjects/06/05/lonnbygganl_en/arkiv/
- Section G:
http://www.ssb.no/english/subjects/06/05/lonnvare_en/arkiv/
- Section H:
http://www.ssb.no/english/subjects/06/05/lonnhotell_en/arkiv/
- Section I:
http://www.ssb.no/english/subjects/06/05/lonnsamf_en/arkiv/
- Section J:
http://www.ssb.no/english/subjects/06/05/lonnfinans_en/arkiv/
- Section K:
http://www.ssb.no/english/subjects/06/05/lonnef_en/arkiv/
- Section M.
http://www.ssb.no/english/subjects/06/05/lonnprivund_en/arkiv/
- Section N.
http://www.ssb.no/english/subjects/06/05/lonnhelse_en/arkiv/
- Section O.
http://www.ssb.no/english/subjects/06/05/lonnsos_en/arkiv/

The statistics are published on the Internet - no results are sent to the reporting units.

The same Internet addresses as above apply for references to methodical documents; these documents can be found using the link "About the statistics" in the left margin.

6. Comparability

6.1. Geographical comparability

The Norwegian earnings statistics are collected annually and comply with most mandatory points drawn up in the council regulation 530/1999, and subsidiary commission regulations. Specific exceptions are stated in the EEA agreement Annex XXI - p.25. Some special features for Norway do however apply:

1. The variable "4.2.2 Special payments for shift work" will include payments for shift work and other irregular payments.
2. The variable "3.3 Total annual days of holidays leave" will only include number of days of holiday and not absence due to sickness or absence for vocational training.

The statistical units are identical to the units used in other countries; the reference population is basically all active enterprises in the section, with the exception of small enterprises with less than 3, 4 or 5 employees (depending on section), which are not included in the reference population.

Statistics Norway also uses international standards with regard to classifications of different variables. Some national adaptations are made, but these are not present in the transferred SES files.

6.2. Comparability over time

Comparable annual statistics on earnings were established for most industrial sections in 1997, a few sections were included later. The statistics are comparable from 1997 and are uniform and comparable among the sections. There has not been any change in the definitions of variables since 1997. The applied methods and models have however been subject to ongoing improvement based on increased knowledge and new requirements since they were established. These ongoing improvements have not affected comparability.

6.3. Coherence with the Labour Force Survey (LFS) 3rd quarter 2006

The following is a short presentation and comparison of the Norwegian SES and the Norwegian LFS surveys. It is important to point out basic differences that possibly could be the cause of differences between the surveys as they are observed in the following tables. Statistics from the LFS are based on published figures.

6.3.1. Comparison of basic information on model assumption, sampling, units and purpose

In the following three short chapters, several basic aspects of the LFS and SES are compared. One of the main reasons for different surveys is to meet different needs. Consequently, the statistics are based on assumptions that meet these specific user needs. The LFS survey monitors and documents quarterly changes in the composition and distribution of the work force. It is based on a sample survey covering individuals (the sample unit is family) that report on their status in the work force.

The earnings statistics on the other hand are structured to answer questions concerning the level and distribution of earnings. As described earlier, the source is a sample of enterprises that reports on employees. There is significant overlap between the populations of the two surveys, but the source of information is different and so are the sampling models. Furthermore, the two surveys have different reference periods and utilize different sources for control, verification and finally dissemination.

Both statistics are nonetheless used for explaining different properties of the same field of interest and in this capacity we can use the LFS to understand the distribution and composition of jobs and employees as they are described in the earnings survey. Discrepancies should, where they occur, be explained and understood as a consequence of overlapping information.

6.3.1.1. *Population and sampling units*

	LFS	SES
Population	All individuals aged 15-74	All enterprises with employees
Sampling unit	Families	Enterprises (by industry)
Analysis unit	Individuals	Employees
Reporting unit	Individuals	Employee (enterprise)
Frequency	Quarterly	Annual

Variable definitions

	LFS	SES
Employed	Persons on sick leave included	
Working time	Full-time - 37 hours or more, if not defined otherwise by the reporting unit.	Full-time - 33 hours or more per week

6.3.1.2. *Objective of the LFS and SES statistics*

LFS	SES
Provide statistics on employed and unemployed and labour force participation	Provide statistics on the level and composition of earnings for all employees (wage and salary earners)

6.3.2. **Tabular results and comparisons with the LFS**

For the tables that refer to distributions of full-time and part-time employees respectively by age, discrepancies are small. Most of the differences between the two sources might very well be a result, at least to some extent, explained by the differences described in the previous chapters. Differences in the definitions of full-time employees in particular may contribute to some of the observed discrepancies even though these should be viewed as small to minimal in this case.

The same factors mentioned above will also explain discrepancies between the tables that show the distribution of full-time employees by industry².

In general it seems that the distribution of employees by sex and industry and sex and age are very similar. This also gives more credit to the assumptions presented in connection with chapter 3, especially concerning the sampling model and hence model assumptions and bias.

² Compared to the data from structure of earnings survey, LFS data for health and social work industry include private enterprises as well as state and municipal enterprises.

Table 6.1a. Labour Force Survey. Distribution of full-time employees by sex and industry, 3rd quarter 2006

Industry	Frequency (%)		
	Males and females	Males only	Females only
C Oil and gas extraction, mining	1.7	2.1	0.9
D Manufacturing	16.0	20.4	8.5
E Electricity supply	1.0	1.3	0.5
F Construction	10.1	15.5	1.0
G Wholesale and retail trade and H Hotels and restaurants ..	16.7	16.8	16.4
I Transport and communication	8.3	10.5	4.5
J Financial intermediation	3.1	2.7	3.8
K Real estate, and business services	13.7	14.8	11.8
M Teaching staff, private education	8.6	5.5	13.7
N Health and social work	16.7	6.9	33.4
O Social and personal service activities	4.3	3.5	5.5
Total	100.0	100.0	100.0

¹ As from 2006 the age limit to participate in the LFS was lowered from 16 to 15 years. At the same time the definition of age was changed from completed years at the end of the year to completed years at the time of the reference week.

Table 6.1b. Structure of Earnings Survey. Distribution of full-time employees by sex and industry, 2006

Industry	Frequency (%)		
	Males and females	Males only	Females only
C Oil and gas extraction, mining	2.8	3.3	1.6
D Manufacturing	18.5	21.7	11.6
E Electricity supply	1.0	1.2	0.6
F Construction	10.6	14.7	1.7
G Wholesale and retail trade	17.5	18.0	16.2
H Hotels and restaurants	2.5	1.7	4.4
I Transport and communication	10.0	11.1	7.5
J Financial intermediation	3.3	2.6	4.8
K Real estate, and business services	14.0	13.7	14.5
M Teaching staff, private education	7.4	4.9	12.7
N Private health and social work	7.7	3.3	17.6
O Social and personal service activities	4.8	3.9	6.7
Total	100.0	100.0	100.0

Table 6.2a. Labour Force Survey. Distribution of full-time employees by sex and age, 3rd quarter 2006

Age	Frequency (%)		
	Males and females	Males only	Females only
C-O			
under 20	2.4	2.6	10.8
20-29	17.7	17.2	18.5
30-39	26.7	26.2	20.5
40-49	25.7	25.6	21.0
50-59	21.1	21.3	19.3
60 and over	6.5	7.1	10.0
Total	100.0	100.0	100.0

Table 6.2b. Structure of Earnings Survey. Distribution of full-time employees by sex and age, 2006

Age	Frequency (%)		
	Males and females	Males only	Females only
C-O			
under 20	2.2	2.3	1.9
20-29	15.6	15.5	16.1
30-39	28.2	28.2	28.0
40-49	26.2	26.0	26.6
50-59	21.0	21.0	20.9
60 and over	6.8	7.0	6.5
Total	100.0	100.0	100.0

Table 6.3a. Labour Force Survey. Distribution of part-time employees by sex and age, 3rd quarter 2006

Age	Frequency (%)		
	Males and females	Males only	Females only
C-O			
under 20	13.3	20.8	2.0
20-29	20.0	25.2	18.4
30-39	18.8	13.2	27.5
40-49	18.3	10.1	25.9
50-59	17.7	12.6	20.6
60 and over	12.0	18.2	5.5
Total	100.0	100.0	100.0

Table 6.3b. Structure of Earnings Survey. Distribution of part-time employees by sex and age, 2006

Age	Frequency (%)		
	Males and females	Males only	Females only
C-O			
under 20	13.1	16.9	11.6
20-29	22.2	29.4	19.4
30-39	20.9	17.6	22.2
40-49	18.8	13.0	21.1
50-59	16.1	12.2	17.6
60 and over	8.9	10.9	8.2
Total	100.0	100.0	100.0

6.4. Coherence with National Accounts

In the following two tables, comparisons between National Accounts and the SES are shown. The first table gives the distribution of wages by industry as the estimated sum of annual wages from the SES and compensation of employees in the National Accounts. The other table compares the distribution of employees by industry. Discrepancies can mostly be explained through differences in definitions, reference periods between the two sources and revision of the NA data. All statistics from the National Accounts³ are based on published figures for 3rd quarter 2006.

Table 6.4. Comparison of annual Earnings SES and compensation of employees and self-employed in National Accounts, 3rd quarter 2006¹

A13 (section)	National Accounts Per cent of sum	Structure of Earnings Per cent of sum
C Oil and gas extraction, mining	4.7	3.8
D Manufacturing	16.4	17.5
E Electricity supply	0.9	1.0
F Construction	8.7	9.0
G Wholesale and retail trade	15.6	16.9
H Hotels and restaurants	2.5	2.3
I Transport and communication	10.2	9.4
J Financial intermediation	4.1	3.9
K Real estate, and business services	15.1	14.4
M Education	8.4	8.1
N Private health and social work	9.2	8.9
O Social and personal service activities	4.1	4.8
Total	100.0	100.0

¹ Covers remuneration in kind and compensation for non-work-related activities such as sick leave, maternity leave etc.

³ In order to maintain comparability between NA and Structure of earnings, municipal enterprises are extracted from NA data

Table 6.5. Comparison of employed in the SES and employees and self-employed in National Accounts, 3rd quarter 2006¹

A13 (section)	National Accounts Per cent of sum	Structure of Earnings Per cent of sum
C Oil and gas extraction, mining	2.2	2.1
D Manufacturing	14.1	15.3
E Electricity supply	0.6	0.8
F Construction	8.9	8.4
G Wholesale and retail trade	18.3	20.0
H Hotels and restaurants	3.8	4.0
I Transport and communication	10.2	9.0
J Financial intermediation	2.5	2.8
K Real estate, and business services	14.0	13.6
M Education	9.3	8.2
N Private health and social work	10.6	10.8
O Social and personal service activities	5.5	4.8
Total	100.0	100.0

¹ Covers remuneration in kind and compensation for non-work-related activities such as sick leave, maternity leave etc.

7. Quality Report - Part A Tables

7.1. Structure of Earnings Survey: grossed results: tabular analyses

	Frequency (%)			Frequency (%)		
	Males and females	Males	Females	Males and females	Males	Females
	Full-time			Part-time		
Hourly gross earnings (NOK)						
0.00-99.99	1.8	1.9	1.7	5.8	7.7	5.1
100.00-124.99	5.0	4.0	7.2	23.2	26.7	21.8
125.00-149.99	17.2	15.0	22.1	28.0	24.1	29.5
150.00-174.99	22.6	22.1	23.6	16.4	14.0	17.4
175.00-199.99	17.7	17.2	18.8	11.5	9.2	12.4
200.00-249.99	18.6	19.3	17.0	10.2	10.7	10.1
250.00-299.99	7.7	8.9	5.0	2.7	3.7	2.3
300.00-high	9.4	11.6	4.5	2.1	4.0	1.4
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990
Overall mean (NOK)	200.4	208.8	181.6	155.4	158.5	154.3
Median value (NOK)	179.5	184.6	169.8	141.9	139.1	142.9
Monthly gross earnings (NOK)						
0-14 999	1.2	1.2	1.2	7.8	9.2	7.2
15 000-19 999	4.7	3.6	6.9	13.7	18.1	12.1
20 000-22 499	8.3	6.6	12.3	11.7	15.0	10.5
22 500-24 999	11.2	10.1	13.7	9.5	11.7	8.7
25 000-27 499	13.4	12.8	14.8	11.1	10.9	11.1
27 500-29 999	11.9	11.5	12.8	10.2	8.8	10.7
30 000-34 999	19.1	19.0	19.5	9.6	7.2	10.5
35 000-39 999	10.5	11.5	8.3	7.9	4.9	9.1
40 000-high	19.6	23.7	10.4	18.4	14.2	20.0
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990
Overall mean (NOK)	33 100	34 680	29 597	12 649	11 319	13 156
Median value (NOK)	29 810	30 848	27 684	11 608	9 043	12 568
Annual gross earnings (NOK)						
0-224 999	3.9	3.3	5.2	4.8	6.2	5.1
225 000-249 999	4.0	3.0	6.4	10.4	15.2	10.2
250 000-274 999	7.2	5.5	11.1	9.8	14.3	10.0
275 000-299 999	9.1	8.1	11.4	7.9	11.0	7.6
300 000-324 999	10.8	10.1	12.2	7.3	9.3	7.5
325 000-349 999	10.4	10.0	11.1	8.8	8.7	9.4
350 000-399 999	18.1	17.9	18.8	8.6	7.6	9.0
400 000-449 999	11.6	12.4	9.9	8.3	6.3	8.7
450 000-499 999	7.3	8.3	5.0	7.9	4.9	8.3
500 000-high	17.6	21.5	8.8	26.3	16.4	24.1
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990
Overall mean (NOK)	401 163	421 653	355 707	151 516	135 856	157 480
Median value (NOK)	361 588	376 556	332 899	138 681	108 012	150 356
Annual holidays (days)						
low-9				38.2	49.9	33.7
10-19				49.1	41.7	51.8
20-24	39.8	42.1	34.8	12.5	8.0	14.3
25-29	60.2	57.9	65.2	0.2	0.3	0.2
30-34						
35-high						
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990
Overall mean (days)	24.2	24.2	24.3	11.7	10.1	12.3
Median value (days)	25.0	25.0	25.0	12.0	10.0	13.0

Monthly hours paid (hours)

0-129				7.6	9.2	7.0
130-139				14.4	19.8	12.4
140-149	2.0	1.7	2.6	12.5	16.1	11.1
150-159	8.4	6.7	12.3	13.4	13.6	13.3
160-169	71.5	69.6	75.5	18.3	18.4	18.2
170-179	10.8	12.6	6.8	10.8	7.8	12.0
180-high	7.3	9.4	2.7	22.9	15.1	25.9
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	399 193	885 620	433 571	119 580	313 990
Overall mean (hours)	165.2	166.3	162.7	78.7	68.7	82.5
Median value (hours)	162.0	162.0	162.0	81.0	65.0	82.0

NACE Rev. 1 section.

C	2.8	3.3	1.6	0.2	0.3	0.2
D	18.5	21.7	11.6	5.6	6.5	5.3
E	1.0	1.2	0.6	0.3	0.3	0.3
F	10.6	14.7	1.7	2.0	3.3	1.4
G	17.5	18.0	16.2	27.6	24.8	28.7
H	2.5	1.7	4.4	8.6	9.4	8.3
I	10.0	11.1	7.5	6.3	10.9	4.5
J	3.3	2.6	4.8	1.5	0.7	1.8
K	14.0	13.7	14.5	12.4	17.4	10.5
M	7.4	4.9	12.7	10.8	11.0	10.8
N	7.7	3.3	17.6	19.9	9.8	23.8
O	4.8	3.9	6.7	4.8	5.6	4.5
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	32 283	61 098	433 571	119 580	313 990

Occupation (1 digit. ISCO)

1	11.0	12.0	8.7	1.9	3.2	1.4
2	15.3	12.9	20.7	12.0	11.8	12.1
3	21.0	19.1	25.0	14.5	10.4	16.1
4	10.7	7.6	17.7	12.4	11.0	13.0
5	10.1	7.4	16.2	41.1	37.0	42.7
6	0.1	0.1	0.0	0.1	0.1	0.1
7	15.8	21.9	2.2	2.1	5.0	1.0
8	11.6	14.8	4.5	3.2	7.1	1.7
9	4.4	4.1	5.0	12.5	14.4	11.9
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990

Education (ISCED 1 digit)

0.1	5.2	5.7	4.0	7.2	11.3	5.7
2	17.5	18.5	15.3	26.0	27.9	25.2
3.4	45.6	48.7	38.8	39.2	36.1	40.3
5 A	27.6	22.7	38.5	25.8	21.6	27.4
5 B	3.4	3.6	2.7	1.2	1.4	1.1
6	0.8	0.8	0.7	0.6	1.6	0.2
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990

Age

under 20	1.2	1.2	1.2	10.0	13.2	8.8
20 - 29	16.6	16.5	16.8	25.2	33.1	22.2
30 - 39	28.2	28.2	28.0	20.9	17.6	22.2
40 - 49	26.2	26.0	26.6	18.8	13.0	21.1
50- 59	21.0	21.0	20.9	16.1	12.2	17.6
60 and over	6.8	7.0	6.5	8.9	10.9	8.2
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0
Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990
Overall mean (age)	41.4	41.5	41.3	37.8	35.7	38.6
Median value (age)	41.0	41.0	41.0	37.0	31.0	38.0

Length of service (years)

0 - 9	70.8	70.3	72.0	78.4	82.9	76.6
10-19	16.3	16.5	16.0	12.6	9.1	13.9
20 - 29	9.4	9.5	9.2	6.6	5.1	7.2
30 - 39	3.0	3.2	2.5	2.1	2.2	2.0
40 - high	0.5	0.5	0.3	0.4	0.7	0.2
Overall frequency	100.0	100.0	100.0	100.0	100.0	100.0

Total number of employees	1 284 812	885 620	399 193	433 571	119 580	313 990
Overall mean (years)	8.0	8.1	7.7	6.2	5.4	6.5
Median value (years)	5.0	5.0	5.0	3.0	2.0	3.0
Size of enterprise.....						
1-9	9.9			30.3		
10-49	27.7			25.3		
50-249	22.5			14.9		
250-499	8.6			7.1		
500-999	9.3			7.4		
1000-high	22.0			15.1		
Overall frequency	100.0			100.0		
Total number of employees	1 284 812			433 571		
Overall mean (employees)	51.4			39.6		
Median value (employees)	9.0			5.0		

8. Quality Report - Part B Tables - variance

8.1. Variance tables (relating to chapter 3.1.1)

	Coefficient of variation			Coefficient of variation		
	Males and females	Males	Females	Males and females	Males	Females
Monthly earnings		Full-time			Part-time	
NACE Rev. 1 section						
C	0.02	0.03	0.02	0.06	0.10	0.06
D	0.01	0.01	0.01	0.01	0.02	0.01
E	0.02	0.02	0.03	0.03	0.05	0.03
F	0.01	0.01	0.02	0.04	0.06	0.03
G	0.01	0.01	0.01	0.02	0.03	0.02
H	0.01	0.01	0.01	0.04	0.09	0.03
I	0.02	0.02	0.02	0.07	0.07	0.07
J	0.02	0.02	0.01	0.02	0.04	0.02
K	0.02	0.02	0.01	0.04	0.04	0.04
M	0.00	0.01	0.00	0.03	0.06	0.01
N	0.01	0.02	0.01	0.02	0.02	0.02
O	0.01	0.02	0.02	0.08	0.10	0.07
Occupation (1 digit)						
1	0.01	0.01	0.01	0.02	0.03	0.02
2	0.01	0.01	0.01	0.02	0.05	0.01
3	0.01	0.01	0.01	0.02	0.04	0.01
4	0.01	0.01	0.00	0.04	0.05	0.03
5	0.01	0.01	0.01	0.01	0.02	0.01
6	0.03	0.04	0.04	0.10	0.13	0.15
7	0.01	0.01	0.01	0.03	0.04	0.02
8	0.01	0.01	0.01	0.02	0.02	0.02
9	0.01	0.01	0.01	0.02	0.03	0.02
Age						
under 20	0.01	0.01	0.01	0.01	0.02	0.01
20 - 29	0.00	0.00	0.01	0.01	0.02	0.02
30 - 39	0.01	0.01	0.01	0.01	0.02	0.01
40 - 49	0.01	0.01	0.01	0.01	0.03	0.01
50 - 59	0.01	0.01	0.01	0.01	0.02	0.01
60 and over	0.01	0.01	0.01	0.01	0.02	0.01
Monthly hours						
NACE Rev. 1 section						
C	0.005	0.006	0.004	0.035	0.054	0.033
D	0.001	0.002	0.001	0.010	0.016	0.010
E	0.003	0.003	0.005	0.019	0.037	0.021
F	0.003	0.003	0.002	0.027	0.046	0.024
G	0.001	0.001	0.001	0.011	0.016	0.011
H	0.002	0.002	0.002	0.019	0.032	0.018
I	0.002	0.003	0.002	0.046	0.047	0.053
J	0.002	0.002	0.002	0.013	0.029	0.012
K	0.002	0.002	0.002	0.017	0.025	0.018
M	0.000	0.001	0.000	0.024	0.055	0.012
N	0.001	0.001	0.001	0.011	0.012	0.010
O	0.003	0.004	0.003	0.033	0.042	0.032
Occupation (1 digit)						
1	0.000	0.001	0.001	0.011	0.018	0.011
2	0.001	0.001	0.001	0.021	0.050	0.011
3	0.001	0.001	0.001	0.008	0.016	0.009
4	0.001	0.002	0.001	0.038	0.060	0.027
5	0.001	0.001	0.001	0.009	0.013	0.008
6	0.005	0.006	0.008	0.075	0.074	0.133
7	0.002	0.002	0.002	0.018	0.027	0.018
8	0.002	0.002	0.002	0.021	0.025	0.017
9	0.002	0.002	0.002	0.022	0.025	0.023
Age,						
under 20	0.001	0.002	0.002	0.014	0.020	0.015
20 - 29	0.001	0.001	0.001	0.012	0.018	0.010
30 - 39	0.001	0.001	0.001	0.007	0.012	0.007
40 - 49	0.001	0.001	0.001	0.007	0.014	0.006
50 - 59	0.001	0.001	0.001	0.007	0.016	0.006
60 and over	0.001	0.001	0.001	0.008	0.015	0.008

References

Council regulation (EC) 530/1999, of 9 March 1999: Concerning structural statistics on earnings and labour costs

Commission regulation (EC) 72/2006, of 16 January 2006: on implementing council regulation (EC) 530/1999 as regards quality evaluation of structural statistics on earnings.

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Coefficient of variance

In chapter 3.1.3, we have made use of coefficient of variance (CV). The following is a short summary of the CV as it is used in the main text and tables. The CV which is sometimes referred to as relative standard deviation, is defined as the ratio of the standard error of the estimator to the expected value. In our case, we aim to calculate a CV for the estimated average of monthly earnings.

Based on the general definition of an average as $\bar{X}_i = \frac{\sum_{i=1}^N X_i}{N}$, we can define the

estimated average for the target population by using the earlier definition of the weights in chapter 3.1.1.1,

$$\hat{\bar{X}} = \frac{\sum_{a=1}^k w_a x_a}{\sum_{a=1}^k w_a}, \text{ where } x_a \text{ is the observed average monthly earnings in}$$

enterprise a in the sample and w_a is the calculated weight for enterprise a .

The standard deviation: $S = \sqrt{\frac{\sum_{a=1}^k w_a (x_a - \bar{x})^2}{k-1}}$ where k is the number of clusters, in our case enterprises, in the sample.

The CV can therefore be calculated as $CV = \frac{S}{\hat{\bar{X}}}$. The CV as commented in

chapter 3.1.1.4 is often expressed as a percentage $CV\% = \frac{S}{\hat{\bar{X}}} \cdot 100\%$. In text and tables, our CV is not expressed as a percentage.

Appendix B

Variables covered in the document

This appendix covers a short list of variables covered in this documentation and the definition of these according to: Commission regulation (EC) 1738/2005, of 21 October 2005: on implementing council regulation (EC) 530/1999 as regards quality evaluation of structural statistics on labour costs and earnings. For more information on the definition and classification of the variables, please consult the referenced NOS D 362 and the commission regulation.

A. Variables relating to the local unit

I) *Size of the enterprise to which the local unit belongs*

Classified as one of the following as a number of employees employed in the reference period:

- 1-9
- 10-49
- 50-249
- 250-499
- 500-999
- 1 000-high

II) *The economic activity*

According to the general industrial classification of economic activity, (NACE Rev. 1)

Section Code	2-digit Code	Description
C	10-14	Oil and gas extraction. mining
D	15-37	Manufacturing
E	41	Electricity, gas and water supply
F	45	Construction
G	50-52	Wholesale and retail trade
H	55	Hotels and restaurants
I	60-64	Transport. storage and communication
J	65-67	Financing
K	70-74	Real estate. renting and business activities
M	80	Education
N	85	Private health and social work
O	90-93	Social and personal service activities

III) *Form of economic and financial control*

According to the sector code the enterprises are classified as public (A) and private (B) enterprises.

Sector code	Sector	Description
1,5 or 6	A	Public sector
Others	B	Private sector

IV) *Existence of collective pay agreements covering the majority of employees in the observation unit*

Employees registered in Personnel Administrative Information System (PAI), Central Register of Employees in Public Sector (SST) or public health enterprises are assigned code A (National level agreement).

Employees at the enterprises with membership in Confederation of Norwegian Enterprises (NHO), the federation of Norwegian commercial and service enterprises (HSH), the Confederation of Financial Intermediation Enterprises (FA) and

Co-operative Employers' Organisation (SAMFO) are assigned code B (Industry agreement).

- V) *Total number of employees in the local unit*
Represents total number of employees in each local unit.

B. Variables relating to the individual employee

- I) *Sex*
II) *Age*
Year of birth. Working age is defined by the 14-80 interval.
III) *Occupation*
According to the International Standard Classification of Occupations (ISCO-88)
The code is reported at a 2-digit level to Eurostat but all tables that utilize occupation in this document only make use of the first digit.

Code	Description
1	Senior officials and managers
2	Professionals
3	Technicians and associate professionals
4	Clerks
5	Market sales workers and service workers
7	Craft workers
8	Operators and drivers
9	Elementary occupations

- IV) *Highest completed level of education and training*
According to ISCED 97, For the Norwegian Structure of Earnings Survey, this information is provided not by the reporting enterprise but through utilisation of a separate register with information on the highest level of completed education for each individual.

Code	ISCED Code	Description
01	0 and 1	Primary education or first stage of basic education
02	2	Lower secondary education or second stage of basic education
03	3	Upper secondary education
03	4	Post-secondary non-tertiary education
04	5A	First stage of tertiary education. General (Not leading directly to an advanced research qualification)
05	5B	First stage of tertiary education. Technical (Not leading directly to an advanced research qualification)
06	6	Second stage of tertiary education (Leading directly to an advanced research qualification)

- V) *Length of service in the enterprise*
According to data from the register of employers and employees (AA register), education statistics (BHU), and earnings statistics. Length of service is defined as the number of whole years worked with the current employer

- VI) *Full-time or part-time employment*
- | Code | Description |
|------|----------------------|
| FT | Full-time employment |
| PT | Part-time employment |

- VII) *Share of a full-timer's normal hours*
Full-time employees get a share of 100%. The share of part-time employees is then calculated on the basis of mean working time for full-time employees in the corresponding industry.

VIII) *Type of contract of employment*

Code	Description
A	Indefinite
B	Fixed term
C	Apprentice/trainee
D	Other

C. Variables concerning earnings, hours paid and holidays

- I) *Total gross earnings for a representative month*
Gross earnings cover remuneration in cash paid directly and regularly by the employer in the reference period. This implies that taxes, national insurance contributions or other payments deducted by the employer are not deducted from the gross earnings.
- II) *Total gross annual earnings in the reference year*
Encompasses all payments in cash as they are defined above that relate to the reference year 2006.
- III) *Total annual bonuses*
Calculated average bonuses per month are multiplied by 12.
- IV) *Earnings related to overtime*
Encompasses all observations with values larger or equal to zero, and all the observations with overtime payments less than total gross earnings for a representative month.
- V) *Special payments for shiftwork*
Includes all observations with special payments for shiftwork values larger or equal to zero, and all the observations with special payments for shiftwork less than total gross earnings for a representative month.
- VI) *Average gross hourly earnings in the representative month*
Total gross earnings in the representative month plus overtime pay in the representative month divided by number of normal working hours paid plus number of overtime hours paid, with a maximum upper limit of 48 normal working hours per week.
- VII) *Number of hours paid during the representative month (or a standard month) covers normal hours and overtime hours in the reference month, and also covers hours paid but not worked, such as annual leave, sick leave, official holidays etc.*
- VIII) *Annual days of holiday leave (excluding days of sick leave)*
This refers to the number of paid annual holidays, not including public holidays, but including holidays granted to employees because of age, special duties or seniority.

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