

Eurostat/OECD 2018 questionnaire on the methodology underlying labour input data in national accounts

Country: Norway

Date: April 2018

Part I: Methods

1. Employment in persons

Question 1.1: Please describe the architecture of your estimation method for employment in persons. Please include details of differences in methods and data sources that may exist at different points in the time series (e.g. a break in the series) or due to the timing of the estimate (e.g. flash estimate, regular estimate or annual data). Please also provide links to articles that may be relevant.

On 1 January 2015 the “A-ordning” was introduced in Norway, see 1.2 for a further description of this source. The quality of the data reported, its high frequency, its extensive coverage and number of variables, justifies this source to be the preferred one when compiling figures for number of employees, employee-jobs, agreed upon hours of work per week, overtime work, absence from work due to sickness and leaves and for the estimation of wages and salaries. However it takes time to analyse the different variables to get a good understanding of how the figures should be interpreted according to national accounts definitions and on how the different variables reported relates to each other. Hence, at the time being, when it comes to estimation of employment, the “A-ordning” has only been used as a source for extrapolating levels of employees in the provisional annual national accounts (PANA)/quarterly national accounts (QNA) while the levels were determined in the latest main revision in 2014 by use of the sources available at that point in time.

According to our plans, new levels on employees, hours worked in employee jobs, wages and salaries and compensation of employees based on the “A-ordning” and a few other sources will be published in 2019, as part of our planned main revision of national accounts that year.

The methods for estimating the levels of employees in the final yearly national accounts up to the accounting year 2015 was briefly as follows:

- 1) Levels of wages and salaries at detailed industry level according to Statistics Norway’s Structural Business Statistics/Government Finance Statistics are divided by the level of wages and salaries per full-time equivalent employee-job (according to wage statistics) in the same industry to get full-time equivalent jobs
- 2) Full-time equivalent employee-jobs are multiplied by the number of employees per full-time equivalent job (according to register based employment statistics) to get number of employees
- 3) Number of employees at detailed industry level are checked against the sum of residents and non-resident employees according to register based statistics covering the two populations.
- 4) If the difference between the estimates and register based information is considered too high, some adjustments are normally made in the conversion rate between full-time equivalents and employees or in wages and salaries per full time equivalent.

- 5) When 1)-4) are performed for all industries, total number of employees are checked against total number of resident employees according to LFS and the register based statistics covering non-residents. If differences are considered too high some adjustments may be made in the variables mentioned in 4).

The number of self-employed in the final yearly accounts has traditionally been linked to the number of self-employed in the LFS. However, the sample error and risk of errors due to respondent's difficulties on answering correct on whether their main job is an employee job or a self-employed job, may give rise to misleading levels and growth rates in employment for this group. In recent years therefore weight has also been put on the register based statistics on income among self-employed. This statistics, which is based on mandatory reporting to the tax-authorities, has figures on number of people whose main income due to employment is mixed income. In our view the quality of the mentioned statistics has improved in recent years. The level of self-employed according to this source is lower than the figures found in LFS. The weight put on this source has contributed to a reduction in the growth rate of self-employed in recent years compared to results from LFS.

For the PANA/QNA for 2016 and 2017 the level of employees according to the "A-ordning" has been used to prolong the time series for employees. The growth rate in QNA is set equal to the growth rate for employees in the same industry/sector found in the "A-ordning". In years previous to the introduction of the "A-ordning", register based statistics on employment among employees was used for prolonging the levels of employees in market based industries, while the development of employees in general government was determined by methods which resembled methods used in the final yearly accounts; the growth in employment was determined by wages and salaries according to Government Finance Statistics divided by wage level per full-time equivalent according to wage statistics.

For the estimation of self-employed in PANA/QNA weight is put on results from LFS, and in recent years also the number of enterprises classified as sole proprietorship according to the statistics covering the demography of enterprises.

Question 1.2: What is the main original source for employment in the national accounts (e.g. administrative source, labour force survey, business survey, other)? Briefly describe this source, its coverage (including over time, range of businesses/households covered, etc.), its availability and whether it is in terms of jobs and/or persons.

The main source is "A-ordningen". This source is the one which now determines the development of employees and which from 2019 also will be the central source for determining the level of employees and hours worked in employee-jobs. The administrative source was established 1 January 2015 and is a coordinated digital collection of employment, income, and tax deductions for the Norwegian Tax Administration, the Norwegian Labour and Welfare Administration (NAV), and Statistics Norway. This means that Statistics Norway receives information about wages and employees directly from the so-called "A-meldingen", which is the electronic message containing all the information collected. All enterprises located in Norway including local and central government and non-profit organizations, with a few minor exceptions to be described later, are obliged to report status for all jobs during the month to be reported, and a vast amount of information connected to those jobs and the persons holding them, no later than 5 days after the end of the month. The source is available with monthly data beginning January 2015. Several control-mechanisms has been established to ensure that the reports are correct. The fact that the information provided are used by the tax-authorities for taxation and by NAV for many purposes, among them calculation of financial support for people absent from work due to sickness and other types of leaves, gives the employers incentives to report correct figures. The monthly reporting to "A-ordningen"

are for the majority of enterprises an integrated part of the software used to administer payments of wages and salaries and keep track of its employees. As part of the reports all enterprises must identify themselves with the central business register number and the employees holding the jobs by the personal identity number. The enterprises are obliged to register each job under a job-identifying number. Hence, for Statistics Norway, each employee-job can be identified each month, along with the person holding the job, and the enterprise where the work takes place. Statistics Norway receives all data, and add further information on the enterprises and its employees by merging the reported data with other register information. In this way the finished register data have detailed industry and sector classification of the enterprises and quite a lot of information regarding the employees; type of education, place of living, age and so on.

All employers are in general obliged to report to a-ordningen. To be more concrete; one specific job and wages paid for the job are obliged to be reported if wages paid for the job during the year exceeds NOK 1000 (€ 107,3). For jobs done in private homes the corresponding threshold value is NOK 6 000, while for jobs in non-profit organizations as defined by the income tax act (§ 2.32), the threshold value is NOK 10 000.

For jobs classified as freelance jobs, board members jobs and the like, wages are often paid on an irregular basis. In the finished data available for us these type of jobs are only registered in the month in which wage has been paid. Thus for these type of jobs no registration has been made for the months with no wage payments. This results in too low number of jobs and employees. For the coming main revision in 2019 this problem will be addressed.

Access to the finished data sets are of course, due to its very detailed information, strictly controlled and available only to a limited number of employees in Statistics Norway. Extraction of the data sets, where information identifying persons and enterprises are removed are available for external research institutions at prices which equals costs of producing and administer the extractions. Among employed in Statistics Norway data are available for a limited number involved in the production on statistics on the labour market, social and welfare area and for those of us producing national accounts data on employment, hours worked and compensation of employees. There are a number of statistics covering the labour market based on the "A-ordning" which are available today. The one which gives the highest levels of details and in this way reflects the source is the statistics covering the number of employments and wage earners, see

<http://www.ssb.no/en/arbeid-og-lonn/statistikker/arblonn>

Please specify the sources used for different parts of employment (in particular if sources differ between employees and self-employed, and/or between industries, firms of different size, etc.). If sources differ, please provide a clear distinction when answering the questions that follow.

Seamen in ocean transport resident in countries outside the EEA-area are at present not covered by the "A-ordning". At the time being it is not clear to us why these seamen are not covered, but it has probably to do with the fact that the non-resident seamen is not paying income tax in Norway, and they do not have a personal identifying number. The number of employees has up to day been calculated on basis of wages and salaries according to the Structural Business Statistics and uncertain estimates of wages and salaries per full-time equivalent. Another group not covered are disabled people working in enterprises designed and supported by the local communities and/or the Norwegian Labour and Welfare Administration (NAV). The total funding of this arrangement and number of such jobs are part of the annual state budget and easily available to the general public.

The number of self-employed has as mentioned in 1.1 traditionally been decided according to the LFS. More and more emphasize are now put on the register based statistics on income among self-employed. By combining the detailed information which forms the basis for this statistics with the detailed data-sets from the “A-ordning”, persons who hold both an employee-job and a job as self-employed, can be correctly classified as employees or self-employed. Thus the detailed data which are used in the production of income statistics among self-employed will be used extensively in future calculations of number of self-employed in the national accounts.

Question 1.3: Please describe how estimates of annual figures based on higher frequency data (e.g. weekly, monthly, quarterly) are derived. Please also specify, if relevant, how annual figures are derived if survey information is less periodic (e.g. every 5 years)?

The data used for the calculation of employment in the PANA/QNA are representative for the actual year/quarter. The data extracted from the “A-ordning” is on a monthly basis and reflects status in the middle of the month (the third week of the month). The value of an indice for employment in quarter q is the average of the three months in the same quarter divided by the average of the 12 months in the base year. To be specific, the value of the indicator for quarter q are calculated on basis of observations during $12+3 = 15$ weeks.

Question 1.4: Please describe the adjustments made to pass from jobs to the concept of persons (if the original source is in terms of jobs).

As mentioned in 1.2, the “A-ordning” keeps track of all different jobs each person hold. In the calculations you choose whether to use jobs or persons. Jobs in the “A-ordning” are classified as main-jobs or secondary jobs. Each employee is part of the industry which his/her main job belongs to.

Question 1.5: Please describe the adjustments made to correct for coverage of the economic territory (see ESA §11.17-11.19)? This refers specifically to residents working for non-resident units abroad non-residents working in resident units. If relevant, please also describe adjustments for military (including conscripts, where applicable) and other collective households not covered by your main source.

The coverage of the “A-ordning” is as mentioned close to the defined population of employment of national accounts. The “A-ordning” covers almost all employment in all enterprises located in Norway. Exceptions are as mentioned in 1.2 seamen resident outside the EEA-area and disabled people working in enterprises as part of arrangements supported by the labour and welfare authority. Persons receiving very low wage payments in non-profit institutions (less than NOK 10 000 per year) and who have no other jobs are not covered, see again 1.2. Work will be undertaken to estimate employment in the group mentioned as part of the main revision next year.

Question 1.6: Which adjustments are made for the unobserved economy (e.g. producers that deliberately do not register, individuals providing their labour that are not required to register, illegal workers, etc.)?

Note that violation of reporting to the “A-ordning” means violation of laws both by the actual enterprise as well as for the employees concerned. The law concerning the “A-ordning” was established in 2014. The tax authorities use the information provided as part of the “A-ordning” in the estimation of income taxes.

Persons not registered with wage-income have no right to receive support from welfare authority (NAV) in case of sickness, and do not build up rights to future pension payments.

Question 1.7: Which, if any, other adjustments are made (e.g. inclusion of resident workers below the age threshold, prisoners, adjustments made to account for statistical deficiencies in the source data, etc.)?

The problems due to threshold values, the case for freelance jobs and the like and problems with seamen in ocean transport resident outside the EEA-area with regard to the “A-ordning” is commented in 1.2.

There is no age-limit in the reporting to the a”A-ordning”.

Question 1.8: In cases where Labour Force Survey data have not been used as the main source (even if only for some activities or groups of workers), please explain why. Are LFS data used for adjustments or cross-checking? Are differences monitored?

LFS are not preferred as source for the estimation of employees simply because the “A-ordning” in our view is a better source. The response rate in the LFS is about 84 percent and varies. The methods for the estimation are associated with uncertainty and errors due to sampling are unavoidable. The LFS comprises only residents while the number of non-resident employees are quite high in Norway and varies quite a lot along the business cycles.

The differences between employment in LFS and national accounts are monitored.

2. Hours worked

Question 2.1: Please describe the architecture of your estimation method for hours worked. Please include details of differences in methods and data sources that may exist at different points in the time series (e.g. a break in the series). Please also provide links to articles that may be relevant.

As mentioned in 1.1 levels on hours worked based on the “A-ordning” will according to plans be introduced in the main revision 2019. The “A-ordning” is now the primary source for the development in hours worked in the provisional annual national accounts (PANA) and the quarterly national accounts (QNA).

The LFS provides information on total hours worked. The period covered by LFS is however a specified number of whole weeks (Mondays – Sundays). Hence, the weeks covered for a specific quarter represent a set of days which differs for the days which constitutes the quarter to be measured in QNA. Also, the period covered when aggregating hours worked for the 4 quarters of the LFS differs from the days to be covered for a specific accounting year in the PANA. The number of working days for two consecutive years can vary by up to 3 days (approximately about 1,0 percent of total hours worked one year). It is also not difficult to understand that it is a difficult task for the respondents of the LFS to answer correct when asked how many hours they actually worked last week. It is our view that hours actually worked according to the LFS are more influenced by measurement errors than other data from the LFS. The approach used in the national accounts is to estimate total hours worked on basis of both statistical sources and by use of legislation and known conditions agreed upon in the wage-negotiations

The methods applied in the final annual accounts and in PANA (QNA) are in general the same. In QNA, however, the (same) methods are used for producing indicators to prolong the time series from the base year (the last year for which a final annual accounts has been produced).

Hours worked (H) are divided by the three components;

HA = Hours agreed upon (employment contracts)

HF = Hours of absence from work

HO = Hours of overtime work,

So that

$$H = HA - HF + HO$$

Hours agreed upon (HA) are estimated by multiplying full-time equivalent jobs (see 1.1 for a description of the method in estimating full-time equivalent jobs) by the number of standard working weeks for the specific industry per year and agreed upon working hours per week according to register based employment statistics. A standard working week consists of 5 days where a full-time employed is expected (according to the agreement) to work each of the 5 days, meaning that public holidays as well as other holidays have been deducted in the calculation of the number of standard working weeks each year.

Hours of absence from work is calculated as rate of absence (f) multiplied by the hours agreed upon

$$HF = f \times HA$$

Hours of overtime work (HO) is calculated as the rate of overtime work (o) multiplied by the hours agreed upon

$$HO = o \times HA$$

The parameter f, rate of absence covers absence due to sickness, parental leaves, conflicts between employer and employees (strikes). Effects of lay-offs due to low turnover are captured in the estimation of full-time equivalent jobs.

The parameter o, rate of overtime work, covers paid overtime work

Question 2.2: What is the main original source for hours worked in the national accounts (e.g. administrative source, Labour Force Survey, Business survey)? Briefly describe this source, its coverage and its ability to reflect the definition of hours worked (see ESA §11.27-11.31). In particular, does it capture a ‘usual’ hours, ‘actual’ hours, or some other concept?

The main source is the “A-ordning”. The “A-ordning” is as mentioned used for producing the indicators used to prolong the different components of hours worked from the latest final yearly national accounts.

The source will according to our plan be used in the revision of level of hours worked as part of the main revision in 2019.

Please specify the sources used for different parts of the employed population (in particular if sources differ between employees and self-employed, and/or between industries, firms of different size, etc.). If sources differ, please provide a clear distinction when answering the questions that follow.

The development in hours worked per full-time equivalent self-employment job in the PANA/QNA is set equal to the development in full-time equivalent wage-jobs for the same industry as the information on hours worked for this group in the LFS are of poor quality.

Question 2.3: Please describe the adjustments made to transform the original source to adapt it to the concept of working hours as defined in national accounts? Please, describe each adjustment separately. These adjustments might include:

- Accounting for holidays and annual leave

See description on methods used on agreed upon hours in 2.1. Information regarding holidays are in our view not properly covered by statistics in Norway. The calculation of standard weeks per full-time equivalent are based on the assumption that the number of days of holiday for employees working full time corresponds to the number of days of holiday the employee possibly can take without experiencing deductions in wages and salaries. The number of such days are according to tariff-agreements covering a large share of all employment 25 days in Norway, while for those employees above the age of 60 it is many cases (like those employed in general government) 30 days. The Employment Protection Act in Norway states that all employees are allowed holiday, and put limits on the discrepancy between actual number of days spent on holiday each year and number of days of holiday the employee can spend without experiencing deduction in wages paid. In our view the average of such differences will be small when aggregating over large number of employees.

- Accounting for sickness leave

See again 2.1. Statistics on sickness leaves are covered by a published statistics from Statistics Norway and the detailed information which the statistics are founded on are available in the data sets from a-ordningen, see also 1.2.

- Accounting for strikes and temporary lay-offs

See again 2.1. Number of lost days due to strikes by industry is covered by a statistic provided by Statistics Norway. Temporary lay-offs are covered by a-ordningen.

- Accounting for paid but unreported overtime

See again 2.1. A- ordningen covers paid overtime (all paid overtime is reported)

- Accounting for unpaid overtime

See again 2.1. Unpaid overtime is not covered by a-ordningen.

Question 2.4: Is a specific adjustment made to account for under- or over-reporting in the source data?

Not at present.

Please specify if these adjustments are made for employees and/or self-employed workers.

Question 2.5: If an adjustment is made for the number of persons employed in relation to the unobserved economy, what assumption is made regarding the hours worked by these persons?

No adjustments are made for the unobserved economy.

Question 2.6: Which other adjustments, if any, are made?

None.

Question 2.7: If necessary, please describe any additional calculations needed to derive total hours worked and average hours worked from the sources and adjustments specified above. This includes, but is not limited to, adjustments made to align the coverage of hours worked with that of employment in persons (i.e. the coverage produced by the process followed in section 1).

Not necessary.

Part II: Other work in this area

3. Differences between national accounts and Labour Force Survey estimates

Question 3.1: To what extent do you consider your Labour Force Survey an accurate tool for the measurement of employment and hours worked? Please describe any issues or shortcomings of which you may be aware.

See 2.1 for a comprehensive judgement of hours worked in the LFS

Question 3.2: If the Labour Force Survey is not the primary source of data used to derive your estimates of employment in persons hours worked: Are you able to quantify, even approximately, what the difference would be between your current national accounts estimates and those you would obtain if you did use the Labour Force Survey data as your primary source?

Yes, we are able to do that task. However we would need support/help from the staff producing the LFS.

Question 3.2.1: Where differences between these estimates exist, can you provide a brief assessment of the source of these differences?

See again 2.1. It should be added that LFS covers only hours worked by residents.

4. Flash estimates of employment in persons

Question 4.1: Are you currently producing flash estimates of employment (t+30 or t+45)? If so, please describe briefly the methodology, coverage and sources. If you are not producing a flash estimate, do you have plans to start doing so in the future?

For several years, we have been publishing estimates of employment in connection with QNA dissemination around t+42. This is the ordinary dissemination of QNA and employment and will not be revised until the next quarter is available.

Question 4.2: Please provide information on the quality of the estimates (e.g. revision analysis).

There are only minor revision of the employment reported t+42/45 and the version reported three months later.

5. Other data produced (Optional)

Question 5.1: Do you have plans in the near future to improve or expand the content of national accounts labour input data (e.g. improved alignment with national accounts concepts, extension of the time series, increased industry detail, etc.)?

We are working to improve the implementation of the "A-ordning" in our system.

Question 5.2: Do you produce labour input data other than that already discussed, for example quality adjusted labour input or labour input in terms of full-time equivalents? If so, please provide details and/or links to these data.

No.

Question 5.3: Do you produce productivity statistics (e.g. labour productivity for the total economy, further breakdowns of labour productivity, capital productivity, multi-factor productivity, etc.)? If so, please provide details and/or links with regards to these data.

Yes, we disseminate multifactorproductivity by industry (annual data), see: <https://www.ssb.no/nasjonalregnskap-og-konjunkturer/statistikker/nr/tilleggsinformasjon/produktivitetsendringer-for-naringer> Please press **Tidsserier og gjennomsnitt for volumendring** (csv-fil) to get to the table. Unfortunately, this table and description is only available in Norwegian. The data is available from 1972 and until 2017

Question 5.4: If there is any other work that you produce currently, or are looking to produce in the future, in the areas of labour input or productivity, please use the space below to inform us about this work.

No.