

# QUALITY DECLARATION

## Labour Force Surveys (LFS)

**Subject area**

Labour market

**Statistical area**

Labour Force Surveys

**Product code**

AM0401

**Reference time**

2019

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## Quality of the statistics

### 1 Relevance

#### 1.1 Purpose and information needs

##### 1.1.1 Purpose of the statistics

The purpose of the surveys is to describe the current labour market conditions for the entire population aged 15-74 and to give information on the development of the labour market. The LFS is the only source that regularly gives a consistent picture of the labour market (employment, unemployment, number of hours worked, etc.).

Consequently, the LFS forms a basis for labour market, employment and economic policy. The LFS is also used to assess progress in society from economic, social, and other perspectives.

##### 1.1.2 User information needs

The design of the LFS takes its lead from International Labour Organization (ILO) guidelines and recommendations. These have been developed in cooperation between governments, social partners, labour market economists and statisticians from all over the world. Since the start, the LFS has followed the ILO's recommendations.

The ILO Labour Statistics Convention reflects above all the statistical requirements of economic statistics. LFS (in a country like Sweden) must therefore be adapted to UN and EU requirements for labour market surveys and must be designed to be incorporated into the basis for the national accounts. The LFS is thereby included in the economic statistics.

As the survey is carried out in accordance with international guidelines and regulations, the results are also an important basis for general assessment of the economic and in international comparisons. The LFS meets important parts of economic and social research needs concerning data in the labour market area.

Parts of the LFS sample and variables are also used by several supplementary surveys, in which information on working environment, the labour market situation for disabled persons, and other closely related issues are collected<sup>1</sup>.

The most important users of statistics include the Riksdag, the Government (the Ministry of Employment, the Ministry of Enterprise and Innovation, the Ministry of Finance), the National Institute of Economic Research, the Riksbank, Arbetsförmedlingen (employment office), and the social partners. The LFS is also used at Statistics Sweden in the national accounts and labour force analyses and forecasts.

#### 1.2 Content of the statistics

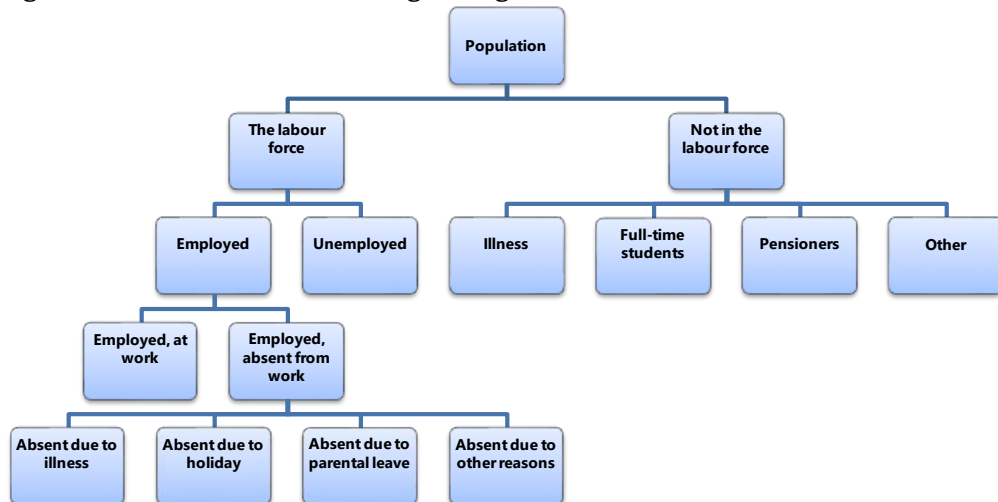
The statistical target characteristics that are primarily estimated present the number and percentage of persons with different labour market conditions.

<sup>1</sup> This refers to the following surveys: the Work Environment Survey, The labour market situation for people with disabilities, and Work-related disorders.

Examples include employed persons, the *employment rate* (percentage of employed persons in the population), unemployed persons, the *unemployment rate* (percentage of unemployed persons in the labour force), persons in the labour force and the *activity rate* (percentage of persons in the labour force in the population).

Figure 1 specifies labour force status categories, which are defined in more detail below.

**Figure 1. Basic classification regarding labour force status**



### 1.2.1 Units and populations

According to international guidelines and regulations, the population of interest for the survey comprises the persons who are 15 years and older, and who are usually residing in the country.

The target population in the LFS consists of persons who are registered in Sweden and who have turned 15 years but not yet 75 years. Consistency between the population of interest and the target population can be regarded as good for two reasons:

- It can be assumed that the absolute majority of the population of interest is contained in the population register, and is thereby included in the target population.
- Persons older than 74 years participate to a very limited degree in the labour market.

The observation units and target units both consist of individuals.

### 1.2.2 Variables

The main *target variables* are:

- in the labour force,
- employed,
- unemployed,
- not in the labour force, and
- actual number of hours worked

The labour force consists of persons who are either employed or unemployed according to the definitions which follow below. Others are classified as *not in the labour force* or with the synonym *outside of the labour force*.

Employed persons includes the following groups:

- Persons who during a certain week (reference week) did some work (at least one hour), either as a paid employee, a self-employed person (including freelancers) or unpaid helper in a business owned by one's husband/wife or another member of the same household (=employed, at work).
- Persons who did not do any work according to the above, but who had a job as an employee, had a position as a helper in a household or were self-employed (including freelancers) and were temporarily absent during the entire reference week. Absence is included, regardless if it was paid for or not (=employed, absent from work). The reason for absence can be illness, holiday, leave of absence (e.g. in order to care for children or to study), national service, labour dispute or leave for some other reason.
- People participating in certain labour market policy programmes are counted as employed persons. This can include labour market programmes for disabled persons, programmes to start a business or employment with wage subsidies or employment support.

Unemployed persons includes the following groups:

- Persons who were without work during the reference week but who had looked for work at some point over the last four weeks (the reference week and the three previous weeks) and could work in the reference week or start within a fortnight of it ending.
- Unemployed persons also include persons who have received work that will begin within three months, on the condition that they could have worked during the reference week or begin within 14 days from the end of the reference week.

Not in the labour force (or outside the labour force) includes all persons who are neither employed nor unemployed. The group consists, for example, of persons who are studying, pensioners, those working at home, and those who have a long-term illness.

Number of hours actually worked is the hours that a person has worked during the reference week. The hours that a person is to work under agreement (or average working time for, for example, self-employed persons) is called "hours usually worked".

For definitions and a more comprehensive description of target variables, see *Terms and definitions LFS* on Statistics Sweden's website [www.scb.se/AM0401](http://www.scb.se/AM0401).

*Interest variables* are established in accordance with ILO guidelines and EU regulations. [Council Regulation 577/98<sup>2</sup>](#) is the fundamental legislation that governs labour force surveys in the European Union, and that specifies the variables to be measured.

As the work to develop statistics and its quality has progressed, a number of supplementary acts have been adopted. A complete list of these acts is available on Eurostat's website [www.ec.europa.eu/eurostat/](http://www.ec.europa.eu/eurostat/).

The *observation variables* consist of the answers to the interview questions in the questionnaire. The target variables in the final observation register are based on these. The questions that are the basis for the observation variables are constructed to minimise the measurement error, and several questions can often comprise the basis for a single target variable. Therefore, in many cases, the difference between observation variables and target variables is considerable. For a description of how target variables are constructed based on the observation variables, see the documentation in MetaPlus<sup>3</sup> and the LFS questionnaire<sup>4</sup>.

*Background variables* mainly consist of demographic variables such as sex, age, civil status, children at home, county of residence, metropolitan municipalities, and country of birth. The data is collected from the LFS sampling frame *Total Population Register*. The information on the level of education and study orientation is collected from the *Register on educational attainment of the population*. In addition, a number of other variables are used in the production, for the sample and in the estimation phase. These variables are known as *auxiliary variables*. For more information on the production of statistics, see SCBDOK/StaF<sup>5</sup>.

### 1.2.3 Statistical measurements

Most of the statistics consist of calculated values of statistical characteristics in the form of *totals* and *mean values* (with "*proportions*" sometimes in special cases). In addition, the statistical inaccuracy is calculated using estimated standard deviations.

### 1.2.4 Study domains

The statistical target characteristics are estimated for a number of different study domains - subgroups of the population - with the help of "classification variables" where background variables play a central part. There are too many study domains to present all of them here. For more complete information, please see the *LFS basic tables*. Virtually all classifications are broken down by sex and age (in 5 or 10 year groups). A brief overview of the classification variables follows below.

Statistics on population:

<sup>2</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/PDF/?uri=CELEX:31998R0577&from=EN>

<sup>3</sup> <https://www.h6.scb.se/metadata/mikrodataregister.aspx> (Accessed 2019-03-19)

<sup>4</sup> <https://www.scb.se/contentassets/71452f0475124a259cec3c1dc6f79536/lfs-questionnaire-20180129.pdf> (Accessed 2019-03-19). The questionnaire is also available in SCBDOK/StaF.

<sup>5</sup>

[https://www.scb.se/contentassets/c12fd0d28d604529b2b4ffc2eb742fbc/am0401\\_staf\\_2019\\_mt\\_190131.pdf](https://www.scb.se/contentassets/c12fd0d28d604529b2b4ffc2eb742fbc/am0401_staf_2019_mt_190131.pdf) (Accessed 2019-03-19).

- Labour force status, children at home (number of children, the age of the youngest child and any children below 19 years), level of education, Swedish born and foreign born.

Statistics on employed persons:

- Degree of attachment to the labour market, industry, occupation, sector, professional status, studies, age, second job, usual and actual hours worked.

Statistics on employed persons and employees:

- The number of persons who work full-time or part-time respectively, usual hours worked, reason for working less than desired, average desire of increased working time.

Statistics on employed persons but temporarily absent:

- Main reason for absence, number of hours absent.

Statistics on unemployed persons:

- Length of unemployment.

Statistics on persons outside of the labour force:

- Main activity, desire to work and possibility for gainful employment.

Latent job seekers:

- Desired working hours.

### **1.2.5 Reference times**

Reporting refers to month, quarter and year. These are based on reference weeks and therefore differ slightly from the calendar's months, quarters and year. An LFS month includes four weeks (five weeks every third month), a quarter includes 13 weeks and a year consists of 52 weeks. When the year consists of 53 reference weeks, the October LFS includes 5 weeks. This occurred most recently in 2015 and will take place next time in 2020.

## **2 Accuracy**

### **2.1 Overall accuracy**

The statistics are affected by inaccuracy. The sources of inaccuracy and their consequences are presented in Section 2.2 *Sources of inaccuracy*.

When assessing how various sources of inaccuracy affect the statistics in a survey, we differentiate between random inaccuracy, which, according to statistical theory, causes measurable inaccuracy of the estimated results, and systematic errors that affect the results in a certain direction. It is difficult to specify how accuracy is affected by any systematic errors (skewness). This requires special evaluation investments that are often very costly, and thus this measurement is only done intermittently.

The term total inaccuracy refers to total inaccuracy = random inaccuracy + systematic error. Studies indicate that systematic errors have a negligible effect on most of the LFS statistics, and that the confidence intervals thereby gives a good picture of accuracy.

## 2.2 Sources of inaccuracy

The sources of inaccuracy that are of utmost significance in the LFS are sampling (occurring because a specific sample has been studied), non-response (occurring because answers are missing completely or partly for some persons in the survey) and measurement (occurring mainly because of misunderstanding of the questions or answers).

### 2.2.1 Sampling

The sample consists of a subset of the population (12-74 years) drawn from the *Total Population Register* (see Section 2.2.2 *Frame coverage*). However, persons under age 15 do not take part in the survey until the month after they reach age 15. Since 2010, the sample consists of two subsamples - the ordinary sample and a supplementary sample. The sampling strata are created by using information from the Total Population Register, and for the supplementary sample, additional register information is also used.

The sampling process is a stratified systematic sample with rotating panel samples. The sample is rotated so that one eighth is exchanged between two consecutive survey rounds. For each sample, this occurs every three months. This means that persons in the sample are interviewed once per quarter and in total eight times over a two-year period, after which time they are exchanged for new sample individuals.

Persons unable to work due to long-term health conditions or who are admitted for care for more than one year ahead, as well as retired persons over age 64 who are not employed or looking for work are interviewed once a year and in the eighth survey round.

The random inaccuracy due to the survey being based on a sample is presented in the form of inaccuracy figures. These can be used to create confidence intervals. These are available in the table packages published on [www.scb.se/AM0401](http://www.scb.se/AM0401).

The *regular monthly sample* includes 21 500 individuals aged 15-74 years. The age groups 15 and 65-74 have a somewhat lower sampling fraction than the group aged 16-64. This is because participation in the labour force is low in the first-mentioned age groups. The sampling fraction also varies among counties; for example, smaller counties have a higher fraction than larger counties. The reason for this is to enable county-wise reporting of the LFS.

The *supplementary sample* consists of 8 000 persons aged 16-66 years. The purpose of the expansion, introduced in 2010, was to provide an opportunity to describe the labour market situation of the population in a more detailed way, and also describe the dynamics in the labour market via flow statistics.

### 2.2.2 Frame coverage

The *Total Population Register* comprises the sampling frame from which the survey population is collected. In 2019, the target population comprises 7 500 000 individuals. The Total Population Register is updated daily through notifications from the Swedish Tax Agency about births, deaths, moves within the country, immigration and emigration. The Total Population Register includes demographic variables (sex, age, place of residence according to the



population register) that affect the drawing of the sample, and these are used as starting values for the background variables (see section 1.2.2 *Variables*).

Deficiencies in coverage are partly due to the undercoverage that occurs when persons living in Sweden are missing from the sampling frame and partly due to overcoverage that occurs for instance when persons in the sampling frame are no longer included in the population.

The *undercoverage* that exists is mainly due to the fact that immigrants (immigrants and persons returning home) enter the Total Population Register after a certain delay. However, the effect on the statistics is assessed to be highly insignificant. It is slightly more problematic that the sample is drawn once a year, and that the chosen persons are interviewed over a two-year period. This means that a sample panel drawn during a certain year does not take into account persons who will settle in Sweden during the subsequent interview period. However, this is only assessed to have a marginal effect on the statistics.

*Overcoverage* is mainly due to the delay in reporting deaths and emigration. These persons would rather not be included in the sampling frame and the deficiency in question is usually not discovered since these people are not reached for an interview. Thus they can wrongly be classed as "non-response" even though the category "overcoverage" is adequate. The quick routines for updating the Total Population Register are considered to lead to an insignificant presence of overcoverage in the frame at the time of the drawing of the sample.

Overall these deficiencies lead to a small and undesired skewness in the statistics. The overcoverage in question is assessed to be 25 000–50 000 persons. See further information in Section 2.2.4 *Non-response*.

In summary, Statistics Sweden assesses that the deficiencies in the sampling frame, both concerning undercoverage and overcoverage, do not distort the statistics in any significant way. The results of the register analysis published in 2017 indicate that coverage problems introduce bias of a size that cannot be expected to be negligible.<sup>6</sup> However, the view is fragmented; for certain study domains, the coverage problems appear to have a relatively negligible effect on reliability as regards the impact on both the total and the ratio estimates, while the reverse is true for other study domains. Even if there are deviating results, the total conclusion is that the problem appears to be smaller when estimating ratios.

### 2.2.3 Measurement

#### *Data collection*

Information is collected by computer-assisted- telephone interviews, according to a questionnaire available on Statistics Sweden's website<sup>7</sup>. The

<sup>6</sup> <https://www.scb.se/en/finding-statistics/statistics-by-subject-area/labour-market/labour-force-surveys/labour-force-surveys-lfs/pong/publications/over-and-undercoverage-in-the-swedish-labour-force-surveys-lfs-a-register-based-analysis/> (Accessed 2019-03-19)

<sup>7</sup> <https://www.scb.se/contentassets/71452f0475124a259cec3c1dc6f79536/lfs-questionnaire-20180129.pdf> (Accessed 2019-03-19)

number of interviewers who conduct the interviews varies around 250 persons per month.

The selected persons are informed about two weeks in advance in a letter that they have been chosen to take part and also about the upcoming telephone interview. During the first interview, a detailed study is made of the person's labour market situation, in general and for the specific reference week. In the subsequent interviews, only changes in certain variables such as labour force status, occupation and workplace are registered. However, information about the work situation during the reference week is registered each time, regardless of previous answers.

Sometimes in case of illness or language difficulties, a proxy interview is done, which means that another person answers on behalf of the selected person. The percentage of proxy interviews in 2018 was 2.8 percent. According to the most recent figures available, which refer to 2017, the average among the European countries was 33.0 percent proxy interviews.<sup>8</sup>

Interviews concerning a certain reference week begin the day after the end of the week. Most of the interviews are conducted within 15 days after the reference week.

In 2012, monitoring of interviews was introduced centrally at Statistics Sweden as part of the work with ISO certification activities. To meet the requirements, five percent of all interviews must be monitored by listening in. Since the sample consists of recurring panels, listening in occurs for some 5 percent unique persons during the year.

#### *Measurement errors*

Statistics Sweden conducted a re-interview study in 2012 and 2013 in which sample persons who had participated in the LFS were re-contacted to gain an understanding of measurement errors and their possible distorting effect in the LFS. The study showed that data did not contain any major (net) measurement errors. The percentage of interviewees who were incorrectly classified with regard to labour force status (employed, unemployed, not in the labour force) amounted to two percent, and the degree of attachment (permanent, temporary, without attachment) amounted to six percent. For a detailed description of the results, see background facts *Measurement errors in LFS* on Statistics Sweden's website<sup>9</sup>.

#### **2.2.4 Non-response**

Non-response occurs when the value of one or more variables in a survey cannot be collected. If all the values for a person are missing, this is called unit non-response; if only some of the values are missing, it is a question of item non-response.

The main reasons for unit non-response are either that the person in question could not be reached for an interview or refused to take part in the survey.

<sup>8</sup> <https://ec.europa.eu/eurostat/documents/7870049/9518973/KS-FT-19-001-EN-N.pdf/82999927-d333-44b6-8743-49210af40882> (Accessed 2019-03-19)

<sup>9</sup> [https://www.scb.se/en\\_/Finding-statistics/Publishing-calendar/Show-detailed-information/?publobjid=23729](https://www.scb.se/en_/Finding-statistics/Publishing-calendar/Show-detailed-information/?publobjid=23729) (Accessed 2019-03-19)

Non-response for each survey round is presented on Statistics Sweden's website in the LFS basic tables.

A sample person is considered a respondent, that is, not a unit non-response, if answers are obtained for those questions that form the basis for the classification of labour force status (employed, unemployed, not in the labour force), and the degree of attachment to the labour market. In addition, employed persons are required to answer the question about hours worked. If the sample person is classified as responding but information is missing for other questions than these, item non-response occurs.

In 2018, unweighted non-response amounted to 47.2 percent, while in 2017, it was 43.4 percent. Non-response was largest in the age groups 15-24 years and 25-34 years. For a summary description of the development of non-response over time, see Section 5.1 *Comparability over time*. Background facts about non-response patterns in the LFS were published in 2015 and are available on Statistics Sweden's website<sup>10</sup>.

*Measures to minimise the error as a result of non-response.*

To reduce the distorting effects of non-response, Statistics Sweden has, since 1993, used auxiliary information in the estimation process from Statistics Sweden's employment register and Arbetsförmedlingen's register of job seekers. The auxiliary information consists of variables that are correlated with the central variables in the LFS and with the distribution of answers and non-response. For a detailed description, see background facts *Sampling and estimation procedure in the Swedish LFS 2005-* on Statistics Sweden's website<sup>11</sup>.

Apart from these measures, no further adjustments are made for either unit non-response or item non-response. Substitution (replacing a respondent's missing answers by answers from another person) and imputation (assumptions about how a person would have answered) are not methods used in the LFS. A study on the effects of non-response on estimates and results was published in 2017 in the form of *background facts*<sup>12</sup>. The results showed that on an aggregated level, the relative non-response bias was 1.1 ( $\pm 0.4$ ) percent for employed persons, 2.9 ( $\pm 4.9$ ) percent for unemployed persons and -2.7 ( $\pm 0.9$ ) for those not in the labour force. The size of the non-response bias varies among different study domains; the highest levels are seen when the classification is made according to level of education.

## 2.2.5 Data processing

*Data registration*

Because the telephone interviews are computer-assisted, the main part of data registration occurs at the same time as the data collection.

<sup>10</sup> <https://www.scb.se/en/Finding-statistics/Publishing-calendar/Show-detailed-information/?pubobjid=26361> (Accessed 2019-03-19)

<sup>11</sup> <https://www.scb.se/en/Finding-statistics/Publishing-calendar/Show-detailed-information/?pubobjid=17711> (Accessed 2019-03-19)

<sup>12</sup> <https://www.scb.se/en/finding-statistics/statistics-by-subject-area/labour-market/labour-force-surveys/labour-force-surveys-lfs/pong/publications/analysis-on-nonresponse-bias-for-the-swedish-labour-force-surveys-lfs/> (Accessed 2019-03-19)

*Checking*, and any changes, is mainly carried out during the interview by examining logical relationships and reasonableness. Computer assisted controls for this are built into the interview programme. In connection with downloading data on answers in the database tables, another comprehensive round of checking and correcting is done if any registration errors occurred at the time of the interview.

### *Coding*

Because the telephone interviews are computer-assisted, the main part of data registration occurs at the same time as the data collection. The only other registration is connected with the coding of the variables industry (SNI2007), sector (INSEKT2014), occupation (SSYK2012, ISCO-08) and socioeconomic group (SEI).

These variables are chiefly coded during the interview via matching against a list of occupations or via information collected from the statement of earnings register. For observations where matching cannot be carried out directly during the interview, manual coding is carried out subsequently, based on open answers collected during the interview.

In general, coding errors give rise to incorrect classifications, which in turn give rise to errors in the statistics. Some groups may be slightly overestimated, for example with respect to the number of persons employed, at the expense of other groups that will be underestimated. Table 1 shows the results of the checking studies done regarding coding in the LFS.

**Table 1. Results of checking studies with regard to coding in the LFS**

Variable	Level	Share of correct coding (%)	Carried out
SSYK12	1	95.9	2017
ISCO-08	1	95.7	2017
SNI2007	1	99.0	2017
SEI	2	96.0	2017
INSEKT 14	1	99.5	2017

### **2.2.6 Model assumptions**

Simple upward adjustment is used in the production of the statistics. This involves the assumption that response propensity is homogeneous in the strata used in the sample design and that are based on, for example, region and sex. Since the sampling stratification differs between subsamples, model assumptions also differ for the different subsamples.

Seasonal adjustment of the LFS time series is done with a method that is built into the standard programme (X12-ARIMA<sup>13</sup>). The method uses time series analysis as a basis for trend cycle and seasonal component estimation. Seasonal adjustment in the LFS assumes that all time series follow an ARIMA model, without being transformed. For a detailed description of the LFS

<sup>13</sup> Findley, D. F., Monsell, B. C., Bell, W. R., Otto, M. C. and Chen, B. C. (1998). *New capabilities and methods of the X-12-ARIMA seasonal adjustment program (with discussion)*. J. Bus. Econ. Statist. 16, 127-177.

seasonal adjustment system, see background facts *Consistent seasonal adjustment*<sup>14</sup>.

### **2.3 Preliminary statistics compared with final statistics**

Only final statistics are disseminated.

## **3 Timeliness and punctuality**

### **3.1 Production time**

*Basic tables and seasonally adjusted data*

Data collection is normally completed 14 days after the end of the last reference week of the month. Tables are published and the Statistical Database is updated another three days afterwards for monthly and, if applicable, quarterly statistics. In connection with the publishing of tables that refer to the month of December as well as the final quarter, tables with annual averages are also published. Seasonally adjusted monthly and quarterly data are published at the same time as the monthly and quarterly basic tables.

*Statistical Reports*

The production time for the quarterly Statistical Report that describes the labour market situation for the population aged 15-74 is about 7 weeks and for the annual Statistical Report about eight weeks after the end of the reference period.

### **3.2 Frequency**

The LFS is conducted monthly and the statistics are presented monthly, quarterly and annually. This means that the LFS disseminates results 17 times in one year.

### **3.3 Punctuality**

The dates for planned publishing in 2019 are available in the publishing calendar for Sweden's official statistics at Statistics Sweden's website<sup>15</sup>.

Statistics for 2019 were published in accordance with the publishing calendar.

## **4 Accessibility and clarity**

### **4.1 Access to the statistics**

Reporting refers to month, quarter and year. The initial presentation of the most important monthly results is made in *Statistical News*; at the same time updates are made to the LFS table packages and the Statistical Database on Statistics Sweden's website [www.scb.se/AM0401](http://www.scb.se/AM0401).

A detailed presentation of the results occurs in the LFS basic tables, which include non seasonally adjusted data. Since April 2005, the basic tables include inaccuracy figures. There are also seasonally adjusted data for monthly and quarterly statistics, trend estimations and linked data. For quarterly statistics,

<sup>14</sup> <http://www.scb.se/sv/Hitta-statistik/Publiceringskalender/Visa-detaljerad-information/?publobjid=21099> (Accessed 2019-03-19)

<sup>15</sup> <https://www.scb.se/hitta-statistik/publiceringskalendern/> (Accessed 2019-03-19)

there are also flow tables and tables that describe the population not at work, underemployed persons and young people neither working nor studying (NEET). In addition, a number of *Supplementary tables* by quarter and year that are not included in Sweden's official statistics are produced.

The results of quarterly and yearly statistics are also regularly presented in the *Statistical Reports* series. The Statistical Reports for quarterly and yearly statistics contain a description of the current situation on the labour market for the entire population aged 15-74.

In addition, a Statistical Report is published three times per year in the form of a theme report. The purpose of the theme report is to highlight labour market conditions, for example, for different groups in the population.

Comprehensive information for monthly, quarterly and yearly statistics is published in Sweden's Statistical Databases.

In addition, certain results are published- in Statistics Sweden's *Sverige i siffror* and in Statistics Sweden Indicators.

#### **4.2 Possibility of obtaining additional statistics**

In addition to the table packages that are produced regularly, tables are produced on commission that cover special needs of different users.

#### **4.3 Presentation**

The results regarding month, quarter, and year are presented regularly in *Statistical news* and *Statistical Reports* and contain text, tables, and figures that describe the main results. For a description of the available table packages, see Section 4.1.

Comprehensive reports on statistics for previous years, with time series and presentations of definitions and survey methods are available on Statistics Sweden's website. Publication series number for quarterly and yearly reports are AM 11 SM and AM 12 SM respectively, in which AM stands for series Labour market. Since 2005, Statistical Reports have been published only online.

#### **4.4 Documentation**

The production of the statistics and the microdata is described in *Statistikens framställning (StaF)*. The quality of the statistics is described in this document. Detailed information about microdata is described in the *Documentation of microdata (MetaPlus)*. All documentation is available on Statistics Sweden's website.

## **5 Comparability and coherence**

### **5.1 Comparability over time**

#### *Major changes in the LFS*

A description of major changes in the LFS follows below; for more historical information, see Appendix 1.

In 1961, Statistics Sweden took over the responsibility for conducting the Labour Force Survey, which was quarterly at the time. Since 1970, the surveys

have been conducted monthly. Then, no major changes were made in the survey until 1987. To ensure that the survey would better reflect the current conditions and changes on the labour market, a comprehensive revision of the contents (including definitions) was made and implemented in the 1987 survey. This revision made it more difficult to make comparisons backwards in time. In order not to lose comparability of the results before and after 1987, data collection and processing were done for the year 1986 according to both the old and new procedures.

In 1993, a new procedure for estimations was introduced with revised non-response compensation (post stratification). The survey was also changed to a continuous survey, meaning that all reference weeks of the year are measured. Before 1993 only two of the four or five weeks in a month were measured.

In April 2005, a new EU-adapted LFS was introduced, implying a new break in the time series. In addition to the general break in the time series the estimation procedure for the production of figures divided by country of birth and citizenship was changed, which meant a break in the time series for these series. Previously, these estimates were computed separately from regular LFS, which lead to deficiencies in comparability between years, insufficient coherence with population totals in the Total Population Register and insufficient ability to sum up between the groups.

During 1987-2007, the Swedish concept of unemployment did not include full-time students who had looked for work and were ready to work. From the October 2007 LFS measurement onwards, this was changed to follow international standards so that full-time students who actively looked for work and are ready to work are counted as unemployed.

The LFS has previously presented the age group 16-64. From the measurement for October 2007 onwards, the LFS started reporting the age group 15-74. However, the tables present the age group 16-64 as a subgroup.

From the publishing of the LFS for October 2007 onwards, Statistics Sweden has presented all results in accordance with the ILO recommendations and EU guidelines.

A comprehensive linkage was done in 2010 to overcome these time series breaks. The series for the 15-74 age group are linked back to January 2001, when the data began to be collected for this age group. All series for the 16-64 age group in the LFS are linked back to 1987. Some central series are linked back to 1970.

On 8 June 2010, Statistics Sweden began to present the LFS based on the expanded sample, which includes a total of 29 500 individuals per month. In connection with the June publishing, all LFS data was revised back in time up to and including January 2010.

Starting with the January 2013 LFS, estimates are based on a new estimator, in which the weighting approach of the two samples has been changed. The new estimator was also used to recalculate all results back to the January 2010 LFS.

#### *Classification changes*

Since 2001, SUN 2000 has been applied for the classification of education. This, together with other measures to improve quality in the *Register of educational*

*attainment of the population* (from which the LFS collects information on the level and orientation of education) led to a break in the time series compared to previously published results. Concerning the level of education, the quality improvement led to a sharp increase in certain levels compared with previous years, for instance for post-secondary education of three years or more.

An improvement of the quality for the information on education level was done in 2012, and means that data for the period 2005-2011 are supplemented with additional register information. In 2012 and onwards, additional questions were added to the questionnaire about educational level. This means there is a time series break compared with information before 2005.

The Swedish industrial classification SNI92 was used during 1995-2002 and SNI2002 was used during 2003-2008. In 2008, industry was double-coded on SNI 2002 and SNI 2007. The SNI 2007 standard was used from the January 2009 LFS.

In 2015, the occupational classification SSYK 2012 was introduced. To facilitate comparability between old and new nomenclature, both SSYK 96 and SSYK 2012 were used for the coding of occupation during 2015. From 2016, occupation is coded only on SSYK 2012.

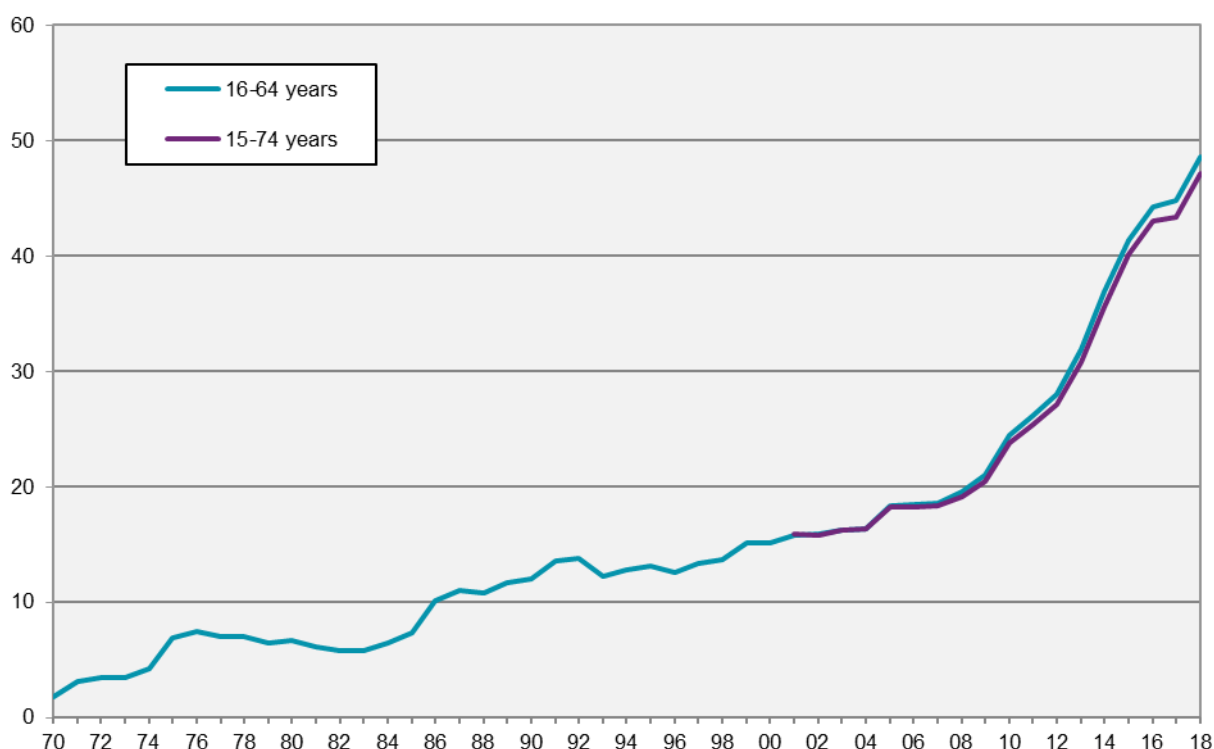
The sector divisions were changed in 2001 according to the Standard Classification by Institutional Sector, INSEKT 2000. For the LFS, this means that public service companies (previously under central government) and the Church of Sweden (previously under municipalities) are reported as *private* and that the government insurance offices (previously under municipalities) are reported as under central government. *Private sector* is a collective name in labour market statistics for units that, according to the standard, do not belong to the central government or municipality sector. The changes led to breaks in the time series. Estimates for the year 2000 have been produced for the sake of comparisons with the estimates of 2001. From the December 2014 LFS, sector reporting was updated according to INSEKT 2014. This change did not have any effect on the time series.

#### *Non-response change over time*

Figure 2 shows the development of non-response over time in the age groups 16-74 years and 15-74 years. The figure shows that LFS non-response has doubled in the last ten years.



**Figure 2. Non-response in the LFS 1970-2018, unweighted in percent on an annual basis**



## 5.2 Comparability between domains

Comparability between different subgroups in the population is very good, since estimates for different groups are based on the same sample and estimator.

## 5.3 Other coherence

Besides the LFS, Statistics Sweden produces statistics on some other surveys, particularly the *Register-based labour market statistics (RAMS)* and *Enterprise-based employment statistics* as well as within the National Accounts. However, the results from these surveys are not completely comparable with the LFS, mainly because of differences in definitions, survey methods and reference time periods.

In addition, the Arbetsförmedlingen publishes monthly statistics on the number of job seekers (persons registered as seeking jobs at the employment offices, and who can begin to work immediately). The monthly statistics from the employment office are a good complement to the LFS, especially because they are complete and can be broken down in more detail on the regional level than the sample-based statistics. However, the statistics are not entirely comparable with the LFS.

A comparison of unemployed persons according to the LFS with those registered as unemployed at the Arbetsförmedlingen in 2015 showed good coherence regarding the number of unemployed persons according to the two different sources. However, coherence differed in the different groups and a division by age showed that the number of unemployed young people was

clearly higher in the LFS compared with the number of registered unemployed young people in the Arbetsförmedlingen. There were also considerable gross differences between the two statistical sources. This means that there were registered unemployed persons at Arbetsförmedlingen who were employed or outside the labour force in the LFS, as well as the fact that there were unemployed persons in the LFS who were not registered as unemployed persons at the Arbetsförmedlingen. A similar comparison in 2016 showed that time in unemployment also differs. For more detailed descriptions of how differences affect coherence, see background facts on the website<sup>16</sup>.

From the measurement for October 2007 onwards, the LFS follows international recommendations and standards for classification. Therefore, coherence with labour force surveys of other countries is good.

#### **5.4 Numerical consistency**

Estimates in all table packages are consistent, with the following exceptions:

- The table packages that contain flow estimates are not consistent with cross-sectional data. Since they are based on only that part of the sample that overlaps between two quarters (7/8), minor differences in the estimates arise.
- In the seasonally adjusted series where industry and sector occur, a minor difference occurs with the table packages that contain cross-sectional data. This difference is caused by the fact that the time series for those with missing information regarding industry or sector are not seasonally adjusted.

<sup>16</sup> Comparison between LFS and Arbetsförmedlingen in 2016:  
[https://www.scb.se/contentassets/46a4a9bddec2413799c697d0cc0dbb5a/am0401\\_2018a01\\_br\\_am76br1806.pdf](https://www.scb.se/contentassets/46a4a9bddec2413799c697d0cc0dbb5a/am0401_2018a01_br_am76br1806.pdf) (Accessed 2019-03-19)

Comparison between the LFS and Arbetsförmedlingen in 2015:  
[http://www.scb.se/Statistik/\\_Publikationer/AM0401\\_2016A01\\_BR\\_AM76BR1603.pdf](http://www.scb.se/Statistik/_Publikationer/AM0401_2016A01_BR_AM76BR1603.pdf)  
(Accessed 2019-03-19)

Comparison between the LFS and Arbetsförmedlingen in 2011:  
[http://www.scb.se/statistik/\\_publikationer/AM0401\\_2013A01\\_BR\\_AM76BR1308.pdf](http://www.scb.se/statistik/_publikationer/AM0401_2013A01_BR_AM76BR1308.pdf)  
(Accessed 2019-03-19)

## General information

### A Classification of the Official Statistics of Sweden

With regard to statistics included in Official Statistics of Sweden (SOS), special rules apply for quality and accessibility, see the Official Statistics Act ([2001:99](#)), the Official Statistics Ordinance ([2001:100](#)), and the Statistics Sweden Regulations on the Quality of the Official Statistics ([SCB-FS 2016:17](#)).

### B Confidentiality and handling of personal data

Regarding confidentiality in the agency's specific task of the production of statistics, Chapter 24, Section 8 of the Public Access to Information and Secrecy Act ([2009:400](#)) applies.

To safeguard that information subject to confidentiality belong to natural persons or enterprises, it is ensured that the information cannot be disclosed directly or indirectly in the statistics that is published.

With regard to personal data, that is, information that directly or indirectly relates to a living person, the Official Statistics Act (2001:99), the Official Statistics Ordinance (2001:100), and the EU General Data Protection Regulation (2016/67) apply.

### C Archiving and discarding material

A copy of all statistical reporting in the form of reports, books and Statistical Reports that have been published as printed matter or disseminated as a PDF document is archived at the Royal Library of Sweden and delivered to the National Archives.

According to the Official Statistics Act, personal data shall be eliminated when it is no longer needed for its purpose. However, the National Archives may specify exceptions to this requirement if necessary, in consideration of the national cultural heritage or for research purposes. According to the preservation decision of the National Archives (RA-MS 2007:64), the Labour Force Surveys are exempted from the rules on archiving.

Information on individuals is currently stored at Statistics Sweden from the survey of 1987 and onwards in a PC environment. The survey rounds 1962–1998 in mainframe computer environment have been archived at the National Archives.

### D Obligation to provide information

There is no obligation to provide information regarding these statistics.

### E EU regulations and international reporting

As of 2001, the Labour Force Survey (LFS) has been adapted according to Council Regulation (EC) No 577/98.

In April 2005, the LFS was adapted to Commission Regulation (EC) No 430/2005. From 2007, the international harmonised definition of unemployment is used. The LFS is regulated by a number of regulations. A complete list of regulations is available on Eurostat's website [www.ec.europa.eu/eurostat/](http://www.ec.europa.eu/eurostat/).

Microdata is delivered quarterly to the EU according to the specification in EU Regulation 577/98. LFS is a survey based on individuals, but to fulfil the requirements of the EU, the conditions on the labour market are also investigated for households. This is done for one-eighth of the sample. Household data is delivered to Eurostat, which publishes the data on its website [www.ec.europa.eu/eurostat/](http://www.ec.europa.eu/eurostat/). In addition, special in-depth studies, ad-hoc modules, are done annually on themes that Eurostat requests. In 2018, the theme was work organisation and working time arrangements.

Every year, a number of tables are delivered to the OECD's labour market publications, as well as tables with a focus on education variables to the publication *Education at a Glance*.

## F History

The first Swedish labour force survey was conducted by the Swedish Labour Market Board (AMS) in May 1959. In August 1961, Statistics Sweden took over the responsibility of conducting the survey. During the period 1961-1969, quarterly surveys were done, and since 1970 the surveys have been conducted monthly. Since 1993, the survey is conducted regularly every week in the year. Since 2007, the survey is fully aligned with international guidelines and regulations. For more historical information, see Appendix 1.

## G Contact information

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## Appendix 1 History, chronological

Event	Point in time	Description
	1959	The first Swedish labour force survey was conducted by the Swedish Labour Market Board.
	1961	Statistics Sweden took over the survey. Following preliminary work to develop the survey, quarterly surveys were conducted in the period 1963-1969.
	1970	Monthly surveys were introduced.
LFS according to the RIDA project was introduced.	1987	<p>Changes in content and definitions were introduced. The most important change was a new variable, degree of attachment to the labour market, was introduced. Other new variables included second job, overtime/additional time and absence less than one week. The quality of the term unemployment was improved by introducing "want-available-see" questions. The data collection procedure was also changed.</p> <p>The changes led to a break in the time series between 1986 and 1987. However, there was double collection of data in 1986, which enabled linking between the years for some variables. The linkage means that two estimates were produced for 1986, in part the original (official) linkage for comparison backwards with 1985 and earlier years, in part an adjusted estimation for 1986 to be used for comparisons with 1987 and onwards.</p>
A new system to measure weeks, use of auxiliary information and an amended definition of unemployment	1993	<p>A rotating "system to measure weeks" was introduced, which means that measurements are made during all weeks of the year. The advantage was that the quality of the estimates of "hours worked" and "absence" improved. The definition of unemployment was changed to expand the "seeking period" to apply for the four latest weeks, and not only for the reference week.</p> <p>Statistics Sweden started using auxiliary information in the estimation process from Statistics Sweden's employment register and</p>

		<p>the Arbetsförmedlingen's register of job seekers.</p> <p>To take these changes into account, model-based recomputations of LFS in 1987-1992 were produced. For more information, see "Att länka ett system av tidsserier. Omräkning av Arbetskraftsundersökningarna 1987-1992".</p>
EU-adapted LFS	1995	<p>An EU-adapted LFS was made from 1995 to 2000. For 1995-1998, an EU-adapted LFS was only made in connection with the survey in April. In 1999 and 2000, it was made in February, March, and April for three rotation groups in each month, and a constructed quarter was delivered.</p>
A new industry classification	1995	<p>A new industrial classification was introduced; SNI 92 replaced SNI 69.</p> <p>In recomputations carried out for the LFS 1987-1994, account was taken of the new industrial classification (SNI 92). For more information, see "Att länka ett system av tidsserier. Omräkning av Arbetskraftsundersökningarna 1987-1992".</p>
New occupation classification	1997	<p>LFS started classifying occupation according to SSYK (ISCO 88 COM), and no longer used NYK83. This led to a break in the time series for occupational codes between the years 1996 and 1997.</p>
Changed regional division	1997, 1998	<p>The creation of Skåne County and Västra Götaland County changed the regional division.</p>
A new estimator and new questions about the length of unemployment	1999	<p>A new estimator, GREG, was introduced. The main effect of the new estimation process was on the regional estimates, while the effect on the national estimates were insignificant. New regional estimates (weights) were produced from 1997 onwards.</p> <p>To correct an inconsistency between the level estimation of unemployed persons and unemployment time, a number of questions to the unemployed persons were introduced. This led to a correction of the estimation of the number of long-term unemployed persons and the length of time in</p>

		unemployment. In the past, these target characteristics were overestimated.
The LFS was EU-adapted under European Regulation No 577/98	2001	This meant that the LFS referred to the age group 15-74 and not as before 16-64 years, and that the data collection for those 15-74 years was done throughout the <u>entire</u> year. However, the official Swedish LFS reporting continued to refer to those aged 16-64. A subset of questions was now also addressed to/about members of the respondent's household (rotation group eight).
A new sector and education classification	2001	A new standard for classification of sector was introduced. A break in the time series arise for the target characteristics "number of employees" and "hours worked by employees" in the central government, municipal and private sectors. In 2000, sectors were coded by both the old and the new standard.  A new standard for the classification of education, SUN 2000, was also introduced. This led to deficiencies in comparability with earlier results.
Revised industrial classification	2003	A revised industrial classification, SNI 2012, was introduced. The educational system, healthcare and nursing industries were affected by the new classification. The impact was a break in the time series for these industries.
LFS was further EU-adapted in accordance with EU regulations 575/2000 and 1897/2000	2005	Continued EU harmonisation included the implementation of certain changes in definitions (employed persons, unemployed persons and underemployed persons), new EU variables (including the length of absence), introduction of direct questions about overtime and absence, a change in the order of questions, and an integration of the questions in the EU amendment in the regular LFS.  The estimator was also changed, by introducing the GREG estimator for all variables. There was also an overhaul of the basic tables and the supplementary tables.

		These changes meant a break in the LFS time series. However, linkages backwards were made for the period 1987 to March 2005.
The new definition of unemployment in accordance with the ILO international definition	October 2007	The Swedish official definition of unemployment was changed to, in accordance with EU regulations, also include full-time students who have sought and been able to work.  <a href="http://www.scb.se/statistik/AM/AM0401/_dokument/AKU_tva_matt.pdf">www.scb.se/statistik/AM/AM0401/_dokument/AKU_tva_matt.pdf</a>
Age classification was changed	October 2007	The LFS had previously presented the age group 16-64. Starting with the October 2007 measurement, the LFS began to present the age group 15-74, according to EU regulations. However, the tables present the age group 16-64 as a sub-group.  The change in age distribution, combined with the new definition of unemployment meant that, from October 2007, the LFS reports <b>entirely</b> in compliance with EU regulations.
A new industrial classification	January 2009	A transition from <b>SNI 2002</b> (based on NACE Rev. 1.1) to <b>SNI 2007</b> (based on NACE Rev. 2). Because SNI 2007 to a large extent differs from SNI 2002, new study domains for industries were produced for the LFS. For more information on new study domains in the LFS, see the link below.  Double coding was implemented in 2008.  <a href="http://www.scb.se/Statistik/AM/AM0401/dokument/Beskrivningredovisningsgrupper_SNI2007_AKU.pdf">www.scb.se/Statistik/AM/AM0401/dokument/Beskrivningredovisningsgrupper_SNI2007_AKU.pdf</a>
Seasonally adjusted and linked data	February 2010	A first module with seasonally adjusted series was published on 18 February 2010.
A new block of questions regarding labour market policy programmes	2010	Ahead of 2010, a number of questions were reworked for the purpose of minimising the risk of incorrect classification of the sample persons' labour force status. Previously there was a risk that the sample persons who are included in phase 3 of the activity and development guarantee wrongly regard this



		activity as work. The scope of phase 3 was very limited during 2009 but was expected to increase in 2010 because more persons had finished the first two phases. Before the change in the questionnaire ahead of 2010, the number of employed persons may have been overestimated, and the number of unemployed persons may have been underestimated, although probably marginally, as the scope of phase 3 was limited.
Expansion of the LFS	January 2010	From January 2010, the LFS reports were based on a larger sample. The increase of the sample was conducted in order to enable describing the labour market situation in more detail, as well as the dynamics on the labour market for the population aged 15-74.
Improved education levels	2012	New information was introduced to supplement the register information. Register-based supplement for the period 2005-2011. For 2012 and onwards, additional questions were added to the questionnaire.
The sample design was changed	January 2013	Starting with the sample that rotated in 2013, a sampling draw was conducted through systematic sampling within strata with sorting by country of birth and personal identity number within strata. This change was carried out to achieve a smoother distribution by age and country of birth in the sample.
New estimator	February 2013	With the publication of LFS in January 2013, estimates were based on a new estimator, in which the weighting approach of the two samples regular LFS sample and supplementary sample was changed. This new estimator was also used to rerun the results backwards including LFS for January 2010, and thereby replaces the previous estimator for weighting.
A new sector division	2014	With the December 2014 LFS, sector reporting changed to be based on INSEKT 2014. However, the change did not affect the

		reporting done in the LFS. Classification is based on the sector of the enterprise.
New occupation classification	2015	LFS started classifying occupation according to SSYK 2012. In 2015, occupation was double-coded with SSYK 1996 and SSYK 2012. From 2016, occupation was coded only using SSYK 2012.