QUALITY DECLARATION
Labour Force Surveys (LFS)

Subject area
Labour market

Statistical area
Labour Force Surveys

Product code
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Sveriges officiella statistik

Contents

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 provide information on the labour market trend. The Labour Force Surveys (LFS) is the only source that continually gives a coherent picture of the labour market (employment, unemployment, number of hours worked, etc.).

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

1.1.2   User information needs

The design of the LFS takes its lead from International Labour Organization (ILO) conventions 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 analysis. 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 also form an important basis for general economic analysis and in international comparisons. The LFS meets important areas of both economic and social research needs with respect to data from the field of the labour market.

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 the disabled and other related questions are collected[1].

The most important users 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, the Swedish Public Employment Service and the social partners. The LFS is also used at Statistics Sweden in work on the national accounts and in labour force analyses and forecasts.

1.2   Content of the statistics

The statistical target characteristics that are primarily estimated present the number and proportion of people with different labour force status. Examples

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

include the number of employed people, *employment rate* (proportion of employed people in the population), number of unemployed people, *relative unemployment rate* (proportion of unemployed people out of the number of people in the labour force), number of people in the labour force and *economic activity rate* (proportion of people in the labour force out of the population).

Figure 1 shows categories of labour force status, which are defined in more detail in section 1.2.2 *Variables.*

Figure 1. Basic classification of labour force status
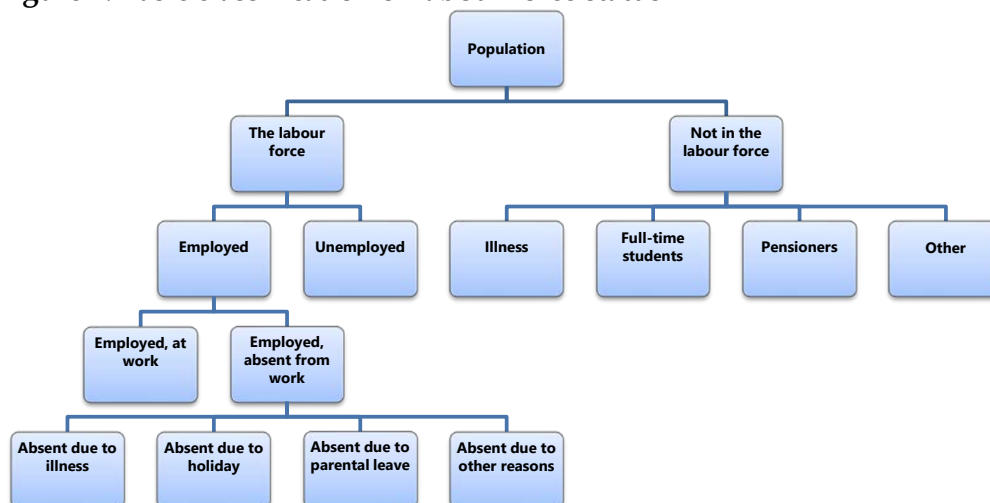
1.2.1   Unit and population

The population of interest for the survey consists of people who are 15 years and older, and who are usually residing in the country.

In the LFS, the target population consists of people who have turned 15 but not yet 75 and who would have been registered in the Swedish population register at 31 December (reference year) if the laws, ordinances and other rules governing population registration had been correctly followed. 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 thus included in the target population.

- People older than 74 years participate to a very limited extent in the labour market.

The observation units and target units both consist of individuals.

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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.

<u>The labour force</u> consists of people who are either employed or unemployed according to the definitions below. Others are classified as *not in the labour force* or with the synonym *outside of the labour force*.

<u>The employed</u> includes the following groups:
- People 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 an unpaid helper in a business owned by a spouse or other member of the same household (=employed, at work).
- People who did not do any work as above, but who held a job as an employee, a position of helper in a household business or who were self-employed (including freelancers) and were temporarily absent during the entire reference week. Absence is included, both paid and unpaid (=employed, absent from work). The reason for absence could 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 count as employed. This can include labour market programmes for the disabled, programmes to start a business or employment with wage subsidies or employment support.

<u>The unemployed</u> includes the following groups:
- People 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.
- The unemployed also includes people who have obtained work that will begin within three months, on the condition that they could have worked during the reference week or started within a fortnight of it ending.

<u>Not in the labour force</u> (or outside the labour force) consists of people who are neither employed nor unemployed. The group includes students, pensioners, homemakers, latent job-seekers, people with a long-term illness, etc.

<u>Number of hours actually worked</u> is the hours that a person has worked during the reference week. The hours that a person is to work, as agreed (or average working time for the self-employed, for example) 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.

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The target variables are established in accordance with ILO guidelines and EU regulations. Council Regulation 577/98[2] is the fundamental legal instrument governing labour force surveys in the EU, and the variables to be measured are specified therein.

As efforts on developing statistics and their quality have progressed, a number of supplementary legal instruments have been adopted. A complete list of these is available on Eurostat's website www.ec.europa.eu/eurostat/.

The interest variables are considered to be close to the target variables; that is, the areas of interest of users are consistent with the target variables described above.

The *observation variable*s consist of the answers to the interview questions in the questionnaire. The target variables included in the final observation register are derived from these. The questions that form the basis for the observation variables are devised to minimise measurement error, and several questions can thus often form the basis for an individual target variable. Therefore, in many cases, the difference between the observation variables and target variables is considerable. For a description of how the target variables are devised based on the observation variables, see the documentation in MetaPlus[3] and the LFS questionnaire[4].

*The background variable*s 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 frame *Total Population Register.* Information on educational attainment level and study orientation is collected from the *Register on educational attainment of the population.* In addition, a number of other variables are used in 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 StaF[5].

1.2.3   Statistical measurements
Most of the statistics consist of calculated values of statistical values in the form of *totals* and *mean values* (with *proportion* common for special cases). In addition, the statistical uncertainty 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 – using classification variables in which background variables have a key role. There are too many study domains to present all of them here. For more comprehensive information on

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[2] http://eur-lex.europa.eu/legal-content/SV/TXT/PDF/?uri=CELEX:31998R0577&from=EN (Accessed 20/01/2020

[3] https://www.h6.scb.se/metadata/mikrodataregister.aspx (Accessed 20/01/2020)
[4]https://www.scb.se/contentassets/71452f0475124a259cec3c1dc6f79536/nyklassblankett_2020.pdf (Accessed 11/02/2020). The questionnaire is also available in SCBDOK/StaF.
[5] https://www.scb.se/contentassets/c12fd0d28d604529b2b4ffc2eb742fbe/am0401_staf_2019_mt_190131.pdf (Accessed 20/01/2020)

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study domains, please see the *LFS basic tables*. Largely all classifications are done by sex and age. Below is a brief overview of the classification variables.

For statistics on <u>the population</u>:
- Labour force status, children at home (number of children, the age of the youngest child and any children below 19 years of age), level of educational attainment, born in Sweden and born abroad.

For statistics on <u>the employed</u>:
- Degree of attachment to the labour market, industry, occupation, sector, studies, age, secondary job, usual and actual hours worked.

For statistics on <u>the employed</u> and <u>employees</u>:
- The number of people who work full time or part time, usual hours worked, reason for working less than desired, reason for working more than usual, average desired increase in working time.

For Statistics on the employed but temporarily absent:
- Main reason for absence, number of hours absent.

For statistics on <u>the unemployed</u>:
- Length of unemployment.

For statistics on people <u>outside the labour force</u>:
- Main activity, desire for and possibility of gainful employment.

For 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 calendar months, quarters and years. An LFS month consists of four weeks, or five weeks every third month, a quarter consists of 13 weeks and a year consists of 52 weeks. When the year consists of 53 reference weeks, the October LFS includes five weeks. This last occurred in 2015 and will next occur in 2020.

2 Accuracy

2.1 Overall accuracy
There are elements of uncertainty in the statistics. The sources of uncertainty and their consequences are described in section *2.2 Sources of uncertainty*.

As of April 2005, a GREG estimator has been used in the estimation process. Uncertainty figures associated with the estimations are presented in basic tables and in Statistics Sweden's Statistical Database. The results from the LFS presented in the basic tables carry some uncertainty because they consist of estimations based on a sample of the Swedish population. Random uncertainty in an estimation that is primarily due to sampling error can be expressed with an uncertainty figure, which is calculated using standard deviations.

Using an uncertainty figure enables forming an opinion of the estimation uncertainty and whether month-on-month or year-on-year differences are random or statistically significant. If the difference is greater than the

uncertainty figure, it is said that the change is statistically significant; in other cases it is said that the difference is within the statistical margin of error – that is, it is random.

To make it easier to judge the accuracy of estimations and to determine whether changes over time are statistically significant, uncertainty figures are presented for all basic tables. The compilation of tables consists of three parts: the first part contains uncertainty figures for level estimations, the second part contains uncertainty figures for the change between consecutive months (for example the change between January and February of the same year) and the third part contains uncertainty figures for year-on-year changes. The table numbering in each of the three parts is consistent with that used in the basic tables, see the table of contents for the basic table concerned.

When assessing how various sources of uncertainty affect the statistics from a survey, a distinction is made between random uncertainty, which according to statistical theory causes calculable uncertainty in the estimated results, and systematic errors, which skew the results in a certain direction. It is difficult to say how accuracy is affected by potential systematic errors (skewness). This requires special, often resource-heavy, evaluation initiatives, and is thus only done intermittently.

The term "total uncertainty" refers to overall uncertainty = random uncertainty + systematic error. Studies indicate that systematic errors have a negligible effect on most of the LFS statistics, and that confidence intervals thus provide a good understanding of accuracy.

2.2   Sources of uncertainty

The sources of uncertainty that are of greatest significance to the LFS are sampling (due to a specific sample having been studied), non-response (due to answers being missing completely or in part for some people in the survey) and measurement (mainly due to misunderstanding 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, people below the age of 15 do not take part in the survey until, at the earliest, the month after they turned 15. Since 2010, the sample has consisted of two sub-samples, the ordinary sample and the supplementary sample. Sampling strata are created by using information from the Total Population Register. For the supplementary sample, additional register information is also used. In 2020, the supplementary sample will be phased out during the first and second quarters, and will be completely phased out by the third quarter. This means that, after that time, the sample will only consist of the regular sample.

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

People who are on long-term sick leave or admitted for care for more than one year forward, as well as pensioners over the age of 64 who are not employed or looking for work, are interviewed once a year and in the eighth survey round.

The random uncertainty due to basing the survey on a sample is presented in the form of uncertainty figures. These can be used to create confidence intervals. These are available in the table packages published at www.scb.se/AM0401.

The ordinary monthly sample includes, during the first quarter, approximately 16,700 individuals aged 15–74 years. In quarter two, it will consist of approximately 18,200 people in the same age group. The age groups 15 and 65–74 have a somewhat lower sampling fraction than the group aged 16–64 years. This is because participation in the labour force is low in the former age groups. The sampling fraction also varies among counties; for example, smaller counties have a higher fraction than larger ones. This is to enable county-wise reporting of the LFS.

The supplementary sample will be phased out in 2020, so no new sample is made for the year. The sample consisted of people aged 16–66.

2.2.2   Frame coverage

The Total Population Register makes up the frame, and the target population is drawn from it. In 2020, the target population comprises approximately 7,500,000 individuals. The Total Population Register is updated daily through notifications from the Swedish Tax Agency about births, deaths, relocation within the country, immigration and emigration. The Total Population Register includes demographic variables (such as sex, age, place of residence according to the population register) that affect drawing the sample and 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 arises when people residing in Sweden are missing from the frame, and partly due to overcoverage that arises for instance when people in the frame are no longer included in the population.

The *undercoverage* that exists is mainly due to the fact that immigrants (immigrants and returning emigrants) enter the Total Population Register with a certain lag. However, the effect on the statistics is considered to be negligible indeed. A slightly more complicated factor is that the sample is drawn once a year, and that the selected people are interviewed over a two-year period. This means that a sample panel drawn in a certain year does not take into account people who will settle in Sweden during the subsequent interview period. However, this is only considered to have a marginal effect on the statistics.

Overcoverage is mainly due to the lag in reporting deaths and emigration. These people would rather not be included in the frame and the shortcoming in question is not usually detected either since these people cannot be reached for an interview. Thus they can wrongly be classed as "non-response" even though the "overcoverage" category is the appropriate one. Thanks to the

swift procedures for updating the Total Population Register, it is considered that frame overcoverage is negligible when drawing the sample.

Overall these deficiencies lead to slight and undesired skewness in the statistics. The overcoverage in question is estimated to be in the range of 25,000–50,000 people. For more information, see section *2.2.4 Non-response*.

In summary, Statistics Sweden considers that the deficiencies in the 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[6]. However, the view is divided; for certain study domains, the coverage problem appears to have a relatively negligible effect on accuracy in terms of the impact on both the total and the ratio estimates, while the opposite applies for other study domains. Even through there are diverging results, the overall 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[7]. The number of interviewers conducting interviews varies around 150 people per month.

The selected people are informed about two weeks in advance by 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 work situation during the reference week is registered each time, regardless of previous answers.

In some cases, for example in the event of illness or language difficulties, a proxy interview is held, which means that another person answers on behalf of the selected person. In 2019, 2.1 percent were proxy interviews. According to the latest available figures, which refer to 2018, the average among the European countries was 33.3 percent proxy interviews[8].

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, co-listening in interviews was introduced centrally at Statistics Sweden as part of efforts to ISO-certify the operations. To meet the requirements, co-listening must be done for 5 percent of all interviews. As the

[6] https://www.scb.se/publikation/32407 (Accessed 20/01/2020)

[7] https://www.scb.se/contentassets/71452f0475124a259cec3c1dc6f79536/nyklassblankett_2020.pdf (Accessed 11/02/2020)

[8] https://ec.europa.eu/eurostat/documents/7870049/10381077/KS-FT-20-001-EN-N.pdf/9945a36a-4166-eae6-47a6-7153346915de (Accessed 05/02/2020)

sample consists of recurring panels, co-listening is carried out for 5 percent of unique individuals during the year.

Measurement error

Statistics Sweden conducted what is known as a re-interview study in 2012 and 2013 in which sample people who had participated in the LFS were contacted again to obtain an understanding of measurement errors and their potential distortion effect in the LFS. The study showed that data did not contain any major (net) measurement errors. The proportion of interviewees who were incorrectly classified in terms of labour force status (employed, unemployed, not in the labour force) was 2 percent, and the degree of attachment (firm, loose, no attachment) was 6 percent. For a detailed description of the results, see background facts *Measurement errors in LFS* on Statistics Sweden's website [9].

2.2.4   Non-response

Non-response occurs when a value of one or more variables in a survey cannot be collected. If all the values for an observation unit are missing, this is called unit non-response. If only some of the values are missing, it is a matter 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 declined to take part in the survey. The non-response for each survey round is presented on Statistics Sweden's website in the LFS basic tables.

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

In 2019, unweighted non-response was 48.3 percent, while in 2018 it was 46.6 percent. Non-response was greatest in the age groups 15–24 years and 25–34 years. For a summary description of the progression of non-response over time, see section *5.1 Comparability over time.* Background facts concerning non-response patterns in the LFS were published in 2015 and are available on Statistics Sweden's website[10].

Measures to minimise error as a result of non-response

To reduce the distortion effects of non-response, since 1993 Statistics Sweden has been using auxiliary information in the estimation process from Statistics Sweden's employment register and the Swedish Public Employment Service's

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[9] http://share.scb.se/OV9997/data/AM0401_2014A01_BR_AM76BR1402.pdf (Accessed 05/02/2020)
[10] https://www.scb.se/hitta-statistik/statistik-efter-amne/arbetsmarknad/arbetskraftsundersokningar/arbetskraftsundersokningarna-aku/pong/publikationer/bakgrundsfakta-bortfallsmonster-i-aku/ (Accessed 06/02/2020)

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job-seeker register. The auxiliary information consists of variables that are correlated with central LFS variables and with the breakdown into response and non-response. For a detailed description, see background facts *Sampling and estimation procedure in the Swedish LFS 2005–* on Statistics Sweden's website[11].

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 with answers from another person) and imputation (assumptions about how a person would have answered) are not used as methods 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*[12]. The results showed that, at an aggregated level, the relative non-response bias for the employed was 1.1 (±0.4) percent, for the unemployed 2.9 (±4.9) percent, and for those not in the labour force -2.7 (±0.9) percent. The size of the non-response bias varies among different study domains; the highest levels are seen when the breakdown is according to level of educational attainment.

2.2.5 Data processing

Data registration

Because the telephone interviews are computer-assisted, the majority of data registration occurs immediately upon data collection.

Checking, and any changes, are mainly carried out during the interview by examining logical relationships and reasonableness. Computer-assisted controls for this are built into the interviewing software. In connection with downloading response data in the database tables, another extensive round of checking and correcting is done of any registration errors from the time of the interview.

Coding

Because the telephone interviews are computer-assisted, the majority of data registration occurs immediately when data is collected. The only other registration that is done is linked to 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 using matching against a list of occupations or through information retrieved from the statement of earnings register. For observations in which matching cannot be carried out directly during the interview, manual coding is done retroactively, based on open responses collected during the interview.

In general, coding errors give rise to incorrect classifications, which in turn cause errors in the statistics. Some groups may be slightly overestimated in size, for example with respect to the number of people employed, at the expense of other groups, which are underestimated. Table 1 shows the results of the coding-checking studies carried out.

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[11] https://www.scb.se/publikation/17711 (Accessed 06/02/2020)
[12] https://www.scb.se/publikation/32401 (Accessed 06/02/2020)

Table 1. Results of studies to check coding in the LFS

Variable	Level	Share of correct coding (%)	Carried out
SSYK12	1	96.3	2018
ISCO-08	1	95.9	2018
SNI2007	DEP	98.7	2018
SEI	2	96.5	2018
INSEKT 14	1	99.8	2018

2.2.6   Model assumptions

Simple upward adjustment is used in the production of the statistics. This involves the assumption that inclination to respond, as a proportion, is homogeneous in the strata used in the sample design and that are based on, for example, region and sex. Because the sample stratification varies between the sub-samples, the model assumption also varies for the various sub-samples.

Seasonal adjustment of the LFS time series is done with a method that is built into a standard program (X12-ARIMA[13]). 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' seasonal adjustment system, see background facts *Consistent seasonal adjustment*[14].

2.3   Preliminary statistics compared with final statistics

Only final statistics are presented.

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. After another three days, tables are published and the Statistical Database is updated for both the month and, where relevant, quarter. In connection with publishing 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 is published at the same time as the monthly and quarterly basic tables.

Statistical Reports

The production time for the annual Statistical Report that describes the labour market situation of the population aged 15–74 is around eight weeks from the end of the reference period. As of the first quarter 2019, the quarterly Statistical Report has been replaced by a statistical news bulletin with the same production time as before; that is, seven weeks from the end of the

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[13] 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.

[14] https://www.scb.se/publikation/21099 (Accessed 06/02/2020)

reference period. The production time for the thematic reports that are published three times a year varies.

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 2020 are available in the publishing calendar for Sweden's official statistics on Statistics Sweden's website[15].

Statistics for 2019 were published in accordance with the publishing calendar, apart from the statistical news bulletin for the third quarter. Publication of the statistical news item for the third quarter coincided with the revision work made by the LFS in the autumn of 2019 and could thus not be done.

4 Accessibility and clarity

4.1 Access to the statistics

Reporting refers to month, quarter and year. The most important monthly results are initially presented in a *Statistical News* bulletin. 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.

The results are presented in detail in the LFS basic tables, which include non-seasonally adjusted data. Since April 2005, the basic tables have included uncertainty figures. There is also seasonally adjusted data for month and quarter, trend estimations and linked data. For quarterly statistics, there are also flow tables and tables that describe the population not at work, the underemployed and young people who neither work nor study (NEET). In addition, a number of *Supplementary tables* by quarter and year, which are not included in Sweden's official statistics, are produced.

Quarterly results are presented in a statistical news bulletin and in an article in Statistics Sweden Indicators. Annual results are regularly presented in the *Statistical Reports* series. The quarterly Statistical News bulletin and the annual Statistical Report contain a description of the situation on the labour market for the entire population aged 15–74. In the article published quarterly, the results are described in more detail in terms of different groups. In addition, a Statistical Report is published three times per year in the form of a thematic report. The purpose of the theme is to highlight labour market conditions for different groups in the population, for example.

Comprehensive monthly, quarterly and annual data is published in the Statistical Database.

In addition, certain results are presented in Statistics Sweden's publication *Sweden in figures* and in Statistics Sweden Indicators.

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[15] https://www.scb.se/hitta-statistik/publiceringskalendern/ (Accessed 06/02/2020)

4.2 Possibility of obtaining additional statistics

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

4.3 Presentation

The monthly, quarterly and yearly results are presented continually in *Statistical News* and *Statistical Reports* containing text, tables and charts describing the main results. For a description of the available table packages, see section 4.1.

Summary 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 numbers for quarterly and yearly reports are AM 11 SM and AM 12 SM, respectively, with AM standing for the Labour market series. Since 2005, Statistical Reports have been published only online.

4.4 Documentation

Production of the statistics and microdata is described in *Production of the statistics* (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 detailed 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. After that time, no major changes to the survey were made 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 as of the 1987 survey. This revision made it more difficult to make historical comparisons. So as not to lose comparability of the results before and after 1987, data collection and processing were done for 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), as well as a new system for measuring weeks. Today, all reference weeks are measured over the year, while previously only two of the four or five weeks in a month were measured.

In April 2005, a new EU-adapted LFS was introduced, causing a new break in the time series. In addition to the general break in the time series, the method for producing estimations broken down by country of birth and citizenship was also changed, causing a break in the time series for these series. Previously, these estimates were computed separately from the regular LFS,

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which led to deficiencies in comparability between years, inadequate 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 and were able to work. From the October 2007 LFS measurement and onwards, this was changed to follow international standards so that students who are actively looking for and are prepared to work count as unemployed.

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

From the release of the LFS for October 2007 and onwards, Statistics Sweden thus switched to presenting all results in accordance with the ILO recommendations and EU regulations.

Comprehensive linkage efforts were made in 2010 to bridge these breaks in time series. The series for the 15–74 age group are linked back to January 2001, when data collection started 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 started to present the LFS based on the expanded sample, which included a total of 29,500 individuals per month. In connection with the June publishing, all LFS data was retroactively revised until and including January 2010.

As of the January 2013 LFS, estimates are based on a new estimator, whereby the method for aggregation of the two samples has been changed. The new estimator was also used to recalculate results retroactively until the January 2010 LFS, and thus replaced the previous aggregation estimator.

As of October 2019, data is presented as of July 2018 and onwards based on a reduced sample. The sample was 14,750 due to quality deficiencies in data from the external provider that managed half of the sample. As of January 2020, the LFS sample consists of 16,700 people. Ahead of the second quarter, the sample is further enlarged and as of April it consists of 18,200 people. The supplementary sample will be phased out as of the third quarter of 2020. The reduced sample makes it more difficult to compare change estimations between years.

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 retrieves information on the level and orientation of education), causes a break in the time series compared to previously published estimations. In terms of the level of educational attainment, the quality improvement causes a sharp increase in certain levels compared with previous years, for instance for post-secondary education of three years or more. In 2020, SUN2020 will be introduced.

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An improvement in quality for the information on educational attainment level was made in 2012, with data for the period 2005–2011 being supplemented with additional register information. In 2012 and onwards, additional questions were added to the questionnaire concerning level of educational attainment. Because of this, there is a break in the time series compared with pre-2005 information.

The Swedish industrial classification SNI92 standard was used during 1995–2002 and SNI2002 was used during 2003–2008. In 2008, industry was double-coded on SNI2002 and SNI2007. 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, the LFS coded both SSYK 96 and SSYK 2012 in 2015. As of 2016, occupation is coded solely according to SSYK 2012.

The sector breakdown was changed in 2001 according to the Institutional Sector Classification Standard, 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 an umbrella name in labour market statistics for entities that, according to the standard, do not belong to the central-government or municipal sector. The changes led to breaks in the time series. Estimations for the year 2000 have been produced for the sake of comparisons with the 2001 estimations. From the December 2014 LFS, sector reporting was updated according to INSEKT 2014. This change did not have any effect on the time series.

Progression of non-response over time

Chart 1 shows the progression of non-response over time in the age groups 16–74 years and 15–74 years. The chart shows that non-response for the LFS has doubled in the last ten years.

Chart 1. Non-response in the LFS 1970–2019, unweighted in percent on an annual basis
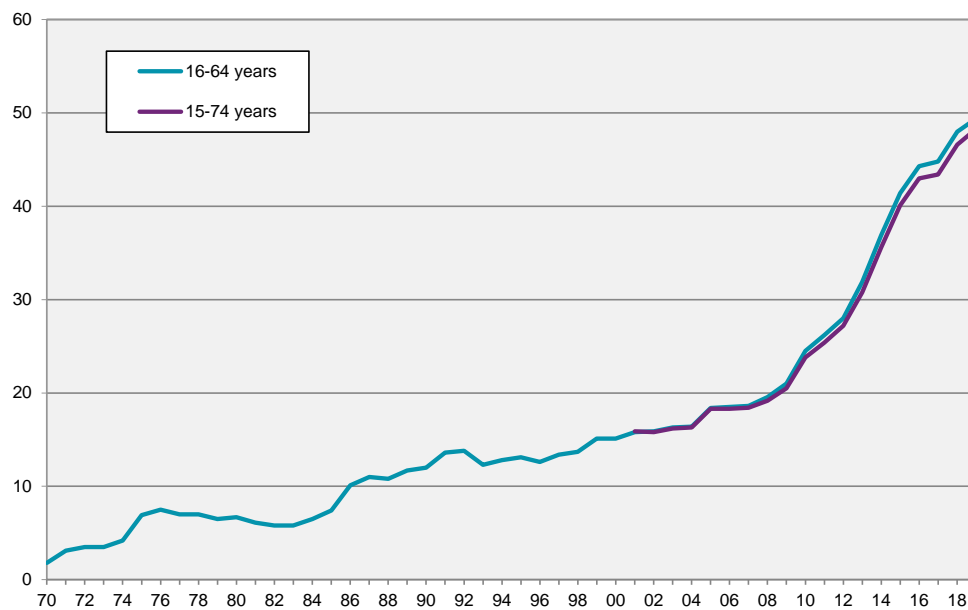
5.2   Comparability between groups

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 employment in 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 entirely comparable with the LFS, mainly because of differences in definitions, survey methods and reference times.

In addition, the Swedish Public Employment Service publishes monthly statistics on the number of job-seekers (people registered as job-seekers at the employment offices, and who could start work immediately). The monthly statistics from the employment office are a good complement to the LFS, especially because they cover the total population and can be broken down in more detail at the regional level than the LFS sample-based statistics. However, the statistics are not entirely comparable with those of the LFS.

A comparison of the unemployed according to the LFS with people registered as unemployed with the Swedish Public Employment Service in 2015 showed good coherence in terms of the number of unemployed people according to the two different sources. However, coherence varied in the different groups and a breakdown by age showed that the number of unemployed youths was clearly higher in the LFS compared with the number of youths registered as unemployed with the Swedish Public Employment Service. There were also considerable gross differences between the two statistical sources. This means that there were unemployed people registered with the Swedish Public Employment Service who were employed or outside the labour force in the

LFS, and also that there were unemployed people in the LFS who were not registered as unemployed with the Swedish Public Employment Service. A similar comparison in 2016 also showed differences in the period of unemployment. For more detailed descriptions of how differences affect coherence, see background facts on the website[16].

As of the measurement for October 2007, 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 the part of the sample that overlaps between two quarters (7/8), minor differences in the estimates arise.

- In the seasonally adjusted series in which industry and sector occur, a minor difference emerges in relation to the table packages that contain cross-sectional data. This difference is caused by the fact that the series for missing information concerning industry or sector is not seasonally adjusted.

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[16] Comparative study LFS and Swedish Public Employment Service – Period of unemployment according to LFS and period without work according to the Swedish Public Employment Service:
https://www.scb.se/publikation/36661 (Accessed 06/02/2020)
Comparative study LFS and Swedish Public Employment Service 2015:
https://www.scb.se/publikation/29205 (Accessed 06/02/2020)
Background facts: Unemployment statistics from the Labour Force Surveys (LFS) and the Swedish Public Employment Service – A comparative study, 2011:
https://www.scb.se/publikation/21177 (Accessed 06/02/2020)

General information

A   Classification of the Official Statistics of Sweden

The statistics are official statistics.

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 the processing of personal data

In the special task of agencies for producing statistics, confidentiality applies according to Chapter 24, Section 8 of the Public Access to Information and Secrecy Act (2009:400).

To protect the data on natural persons or enterprises that is subject to confidentiality, it is ensured that such data cannot be disclosed directly or indirectly in the published statistics.

With regard to personal data, that is, information that can be directly or indirectly attributed to a living person,
the Official Statistics Act (2001:99), the Official Statistics Ordinance (2001:100) and the EU General Data Protection Regulation (2016/679) 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 presented as pdf documents is archived at the Royal Library of Sweden and delivered to the National Archives.

According to the Official Statistics Act, personal data shall be discarded when it is no longer needed for its purpose. However, the government or the National Archives may prescribe exceptions to this obligation, in consideration of national cultural heritage or research needs. According to the preservation decision of the National Archives RA-MS 2007:64, the Labour Force Surveys are exempted from the rules on discarding materials.

Information on individuals is currently stored at Statistics Sweden from the survey of 1987 and onwards in a PC environment. The 1962–1998 survey rounds in a mainframe computer environment are 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 EU Regulation No 577/98.

In April 2005, the LFS was adapted to EU Regulation No 430/2005. From 2007, the international harmonised definition of unemployment applies. The LFS is governed by a number of regulations. A complete list of regulations is available on Eurostat's website, www.ec.europa.eu/eurostat/.

Microdata is delivered quarterly to the EU according to the specification in EU Regulation No 577/98. LFS is a survey based on individuals, but to fulfil the requirements of the EU, the conditions on the labour market for households are also studied. This is done for one-eighth of the sample. Household data is delivered to Eurostat, which attends to publishing it on its website, www.ec.europa.eu/eurostat/. In addition, special in-depth studies and ad-hoc surveys, are conducted annually on various themes requested by Eurostat. In 2018 the subject was work organisation and working hours structures.

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

F   History

The first Swedish labour market survey was conducted by the Swedish Labour Market Board (AMS) in May 1959. In August 1961, Statistics Sweden took over responsibility for conducting the survey. During the period 1961–1969, quarterly surveys were carried out, and since 1970 the surveys have been conducted monthly. Since 1993, the survey has been conducted regularly every week throughout the year. Since 2007, the survey has been fully aligned with international guidelines and regulations. For a broader historical overview, see Appendix 1.

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Appendix 1. History, chronological

Event	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	Changes in content and definitions were introduced. The most important change was that a new variable, degree of attachment to the labour market, was introduced. Other new variables included second job, overtime/additional time and absence of less than one week. The quality of the term "unemployment" was improved by introducing "willing-able-looked" questions. The data collection procedure was also changed. 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 certain variables. The linkage means that two estimates were produced for 1986 – the original (official) one for retroactive comparison with 1985 and earlier years, and also an adjusted estimation for 1986 to be used for comparisons with 1987 and onwards.
A new system to measure weeks, use of auxiliary information and an amended definition of unemployment	1993	A rolling "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 "job-seeking period" to apply to the last four weeks, and not only the reference week. Statistics Sweden starts using auxiliary information in the estimation process from Statistics Sweden's employment register

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		and the job-seeker register of the Swedish Public Employment Service.
		To take account of these changes, model-based recomputations of LFS for 1987–1992 were produced. For more information, see Linking a system of time series. Recomputation of the 1987–1992 Labour Force Surveys".
EU-adapted LFS	1995	An EU-adapted LFS was carried out from 1995 to 2000. For 1995–1998, an EU-adapted LFS was only carried out in connection with the survey in April. In 1999 and 2000, it was done in February, March, and April for three rotation groups in each month, and a construed quarter was delivered.
New industrial classification	1995	A new industrial classification was introduced; SNI 92 replaced SNI 69. In recomputations performed for the 1987–1994 LFS, account was taken of the new industrial classification (SNI 92). For more information, see ""Linking a system of time series. Recomputation of the 1987–1992 Labour Force Surveys".
New occupation classification	1997	LFS started classifying occupation according to SSYK (ISCO 88 COM), and no longer used NYK83. This caused a break in the time series for occupational codes between the years 1996 and 1997.
Altered regional breakdown	1997, 1998	The creation of Skåne County and Västra Götaland County caused a change in the regional breakdown.
New estimator and new questions about the length of unemployment period	1999	A new estimator, GREG, was introduced. The main impact of the new estimation process was on the regional estimates, while the effect on the national estimates was negligible. New regional estimates (weights) were produced from 1997 onwards. To correct an inconsistency between the level estimation of the unemployed and period of unemployment, a number of questions for the unemployed were introduced. This led to a correction of the estimation of the number of long-term unemployed and the length of unemployment period. In the past, these

		target characteristics had been 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 16–64 like before, and that data collection for those aged 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 the questions was now also addressed to/concerned members of the respondent's household (rotation group eight).
New sector and education classification	2001	A new standard for classification of sector was introduced. A break in the time series arose 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 according to 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 published results.
Revised industrial classification	2003	A revised industrial classification, SNI2002, was introduced. Education, and healthcare and nursing, were affected. 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, unemployed and underemployed), the introduction of new EU variables (including length of absence), introduction of direct questions about overtime and absence, a change in the order of questions, and integration of the questions in the EU addendum into the regular LFS questions.
		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 caused a break in the LFS time series. However, retroactive linkages

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		were made for the period 1987 to March 2005.
New definition of unemployment in accordance with the ILO international definition	October 2007	The Swedish official definition of unemployment was changed, in accordance with EU regulations, to also include full-time students who have sought and been able to work. www.scb.se/statistik/AM/AM0401/_dokument/AKU_tva_matt.pdf
Change in age classification	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 years as a sub-group. The change in age distribution, combined with the new definition of unemployment, meant that, as of October 2007, the LFS reports **fully** in compliance with EU regulations.
New industrial classification	January 2009	A transition from **SNI 2002** (based on NACE Rev. 1.1) to **SNI 2007** (based on NACE Rev. 2). Because SNI 2007 largely 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 carried out in 2008. www.scb.se/Statistik/AM/AM0401/_dokument/Beskrivning_redovisningsgrupper_SNI2007_AKU.pdf
Seasonally adjusted and linked data	February 2010	An initial 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 labour force status of sample people. Previously, there was a risk of the sample people included in phase 3 of the activity and development guarantee wrongly considering this activity to be work. The

		scope of phase 3 was very limited during 2009 but was expected to increase in 2010 because more people had completed the first two phases. Before the change in the questionnaire ahead of 2010, the number of employed people may have been overestimated, and the number of unemployed may have been underestimated, although probably only 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, as a "supplementary sample" was added. The sample was enlarged in order to enable describing in more detail the situation and dynamics of the labour market for the population aged 15–74 years.
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	With the rotating sample in 2013, drawing the sample was done through systematic sampling within strata with sorting by country of birth and personal identity number within strata. This change was made to attain a smoother distribution by age and country of birth in the sample.
New estimator	February 2013	With the publication of the January 2013 LFS, estimates were based on a new estimator, whereby the method for aggregation of the two samples – the regular sample in the LFS and the supplementary sample – was changed. The new estimator was also used to recalculate results retroactively until the January 2010 LFS, thus replacing the previous aggregation estimator.
New sector classification	2014	With the December 2014 LFS, sector reporting changed to be based on INSEKT 2014. However, the change does 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

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		SSYK 2012. From 2016, occupation was coded using SSYK 2012 only.
Revision and sample reduction	2019	The LFS reduced the sample in the October LFS by 50 percent to 14,750 due to quality deficiencies in data from the external provider that managed half of the sample. The estimations were also revised retroactively until July 2018. The revisions are also based on the reduced sample.