

Living Conditions Surveys (ULF/SILC) 2012

LE0101

This description begins with a report on administrative and legal information about the survey as well as its purpose and historical background. This is followed by a description of the content and accuracy of the survey together with how it is carried out and how the results are made available. By clicking on a heading on the contents page, you can move directly to the relevant section.

Contents

A	General information.....	2
A.1	Subject area.....	2
A.2	Statistical area	2
A.3	Official Statistics of Sweden classification	2
A.4	Statistical agency responsible for statistics	2
A.5	Producer of statistics.....	3
A.6	Obligation to provide information	3
A.7	Confidentiality and rules for handling personal information	3
A.8	Archiving regulations.....	3
A.9	EU regulations	3
A.10	Objectives and background.....	4
A.11	Use of the statistics.....	4
A.12	Design and implementation.....	4
A.13	International reporting.....	5
A.14	Planned modifications in future surveys	6
B	Quality declaration.....	7
B.0	Introduction.....	7
B.1	Contents.....	7
1.1	Statistical target characteristics	7
1.1.1	Objects and population.....	7
1.1.2	Variables	7
	THEME: SOCIAL RELATIONS:.....	8
	Citizen activities:.....	8
	Social relations:	8
	Security and safety:	8
	THEME: WORKING LIFE.....	9
	Employment and working hours:	9
	Work environment:	9
	THEME: PHYSICAL ENVIRONMENT	10
	Leisure:	10
	Housing:.....	10
1.1.3	Statistical measures	11
1.1.5	Reference times.....	11
1.2.	Comprehensiveness.....	11
B.2	Accuracy.....	11

2.1	Overall accuracy.....	11
2.2	Sources of uncertainty.....	14
2.2.1	Samples	14
2.2.2	Frame coverage	15
2.2.3	Measurement	16
2.2.4	Non-response.....	18
2.2.5	Data processing	20
2.2.6	Model assumptions.....	21
2.3	Reporting of uncertainty measures.....	21
B.3	<i>Timeliness</i>	21
3.1	Frequency	21
3.2	Production time	21
3.3	Punctuality.....	21
B.4	<i>Comparability and coherence</i>	22
4.1	Comparability over time	22
4.2	Comparability between domains.....	23
4.3	Coherence with other statistics.....	23
B.5	<i>Availability and clarity</i>	23
5.1	Dissemination forms	23
5.2	Presentation	23
5.3	Documentation	24
5.4	Access to microdata	24
5.5	Information services.....	24

A General information

A.1 Subject area

Subject area: Living conditions

A.2 Statistical area

Statistical area: Living conditions

A.3 Official Statistics of Sweden classification

Official Statistics of Sweden (SOS:) Yes



Special rules apply for surveys that are included in the Official Statistics of Sweden concerning quality and availability. See the Official Statistics Ordinance (2001:100).

A.4 Statistical agency responsible for statistics

Government agency/organisation: Statistics Sweden
Postal address: Box 24300, SE-10451 Stockholm
Visiting address: Karlavägen 100, Stockholm
Contact person: Anders Ljungberg
Telephone: +46 8 5069 4615
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A.5 Producer of statistics

<i>Government agency/organisation:</i>	Statistics Sweden
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<i>Visiting address:</i>	Karlavägen 100, Stockholm
<i>Contact person:</i>	Anders Ljungberg
<i>Telephone:</i>	+46 8 5069 4615
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A.6 Obligation to provide information

There is no obligation to provide information according to the Official Statistics Act (SFS 2001:99).

A.7 Confidentiality and rules for handling personal information

For confidentiality regarding the authority's specific task for the production of statistics, see Chapter 24, Paragraph 8 of the Public Access to Information and Secrecy Act (2009:400). For the automatic handling of personal data, the rules in the Personal Data Act (1998:204) apply. Within the area of statistics, there are also specific rules on the handling of personal data in the Official Statistics Act (2001:99) and the Official Statistics Ordinance (2001:100).

A.8 Archiving regulations

According to the Official Statistics Act, personal information shall be eliminated when it is no longer needed for its purpose. Data from the ULF/SILC surveys shall be stored, according to a special decision from the National Archives (RAMS 2011:59).

A.9 EU regulations

Beginning 2008, the content of ULF has been adapted and supplemented to the EU-SILC (European Statistics on Income and Living Conditions) in accordance with EU Regulation 1177/2003. As a result, the ULF survey has subsequently been harmonised with other member country surveys.

The EU-SILC is a survey that is common to all European countries and asks questions regarding education, housing, health, social conditions, income and employment. The goal is to have a set of common European statistics on income and living conditions at the level of both the household and individual. The EU-SILC consists of two parts: a cross-sectional part and a longitudinal part.

A complete list of the regulations governing the EU-SILC is available on the Eurostat website:

http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/legislation

A.10 Objectives and background

The main purpose of the survey is to highlight the distribution of welfare between different groups in the population. Statistics Sweden's Living Conditions Survey (ULF) was started 1975. Beginning with the 2008 survey, ULF was harmonised with the EU-regulated EU-SILC survey in that the sample for the new panel in the EU-SILC's longitudinal part includes questions that are contained in the ULF. Hereafter the integrated survey is called ULF/SILC.

The number of components in the survey has been gradually increased. At its inception in 1975, the welfare components consisted of health, finances, employment and work environment, education and housing. The 1976 survey added the components leisure and social relations; and the 1978 survey added civic activities, transportation, and security and safety.

Beginning in 1979, a division into four main themes was applied with a certain periodicity, so-called in-depth surveys. These themes are Health and care services, Working life, Social relations, and Physical environment. For more information, see *A.14 Planned changes in future surveys*. The in-depth surveys are carried out during a two-year period (since 1980). Each round of in-depth surveys includes a number of key indicators from each welfare component as well as questions that constitute the basis for the standard background variables.

Beginning in 1986, a panel section is regularly included in the survey. The panel portion constitutes just over 40 percent of the total sample, and is supplemented by persons aged 16-23 and immigrants. The panel section refers to individuals who answer questions about living conditions every eight years.

A.11 Use of the statistics

The survey forms the basis for planning and evaluation of public sector activities, research and public debate. A reference group is linked to each survey component included in an in-depth survey in a certain year. The group consists of representatives primarily from the responsible authorities and research in the area. Assignments to the reference groups are made by taking into account the in-depth surveys that are conducted for a specific component. The reference group includes the National Board of Health and Welfare, Ministry of Health and Social Affairs, Swedish Institute for Social Research at Stockholm University, and the Swedish National Institute of Public Health. In addition, there is a user council with external representatives who take a position on operational plans and achieved results.

A.12 Design and implementation

The individuals participating in the survey are selected using a stratified, independent random sample from the Total Population Register, TPR. The individuals included in the ULF panel are selected in certain years through an independent random sample, but a stratified, independent random sample was

used for 2012. Sample persons were interviewed by telephone by interviewers employed by Statistics Sweden. About 160 people work as interviewers in the data collection. The questions are entered into a computer program and are read aloud by the interviewer, who also registers the answers in the computer.

Field work in 2012 took place beginning the week of 16 January to the week of 17 December. This means that data collection during this period takes place in the form of a first round of interviews that are supplemented by a follow-up in cases where the respondent has not been reached.

Post-processing (review, correction, coding) is done manually in a computer environment. Coding has already been done to some extent in the interview situation.

A variety of derived variables are created based on interview data. The survey data are supplemented with register data from:

- Data on individuals from *the Total Population Register* (refers to the time of sampling)
- Income data from *the Income and taxation register* (for the ULF part, refers to the survey year)
- Income data from *the Income and taxation register* (for the SILC part, refers to the year before the survey year)
- Data on education from *the Register of Education* (data through the spring term of 2010 were used during data collection, the data were checked with the respondents and updated as needed)

Register data are used to create the variables at risk of poverty and income below the social assistance norm. In addition to the ability to create variables, register data are used to construct weights (for more detailed description, see page 19).

The sample is a combination of a recurring panel section and new subsamples from the TPR, version 2011-09-30. The total sample for 2012 consisted of about 19 500 individuals aged 16 and above.

Children aged 10-18 of the respondents are asked to participate in the surveys on the Living Conditions of Children, Barn-ULF (Child-ULF). For more information about Barn-ULF, see Statistics Sweden's website, www.scb.se/barnulf.

A.13 International reporting

Since 2008, ULF has been integrated with the EU-SILC and is now called ULF/SILC. Parts of the variable content of ULF/SILC are therefore reported to Eurostat, the EU's statistical agency. The reporting of statistics to Eurostat occurs twice a year in the form of data files according to Eurostat's specifications, i.e. a cross-sectional part and a longitudinal part.

A.14 Planned modifications in future surveys

Up to now, the various components have been grouped into four main themes that recur on a rotating basis according to the schedule below. The proposed division for future years is also shown here, see the next page. The proposed division relates only to the in-depth questions in the ULF section of the survey. Beginning 2016, in-depth question within the ULF are planned for removal, whereas the SILC in-depth questions will be implemented as before.

MAIN THEMES	PERIODICITY					
ULF in-depth surveys						
<i>Social relations</i>						
Citizen activities	1978	1984–85	1992–93	2000–01	2008–09	-
Security	1978	1984–85	1992–93	2000–01	2008–09	-
Social relations, family	1976	1984–85	1992–93	2000–01	-	-
<i>Working life</i>						
Employment and work environment	1975	1979	1986–87	1994–95	2002–03	2010–11
Finances	1977	1979	1986–87	1994–95	2002–03	-
Education	1975	1979	1986–87	1994–95	2002–03	-
<i>Health and care services</i>	1975, 1977	1980–81	1988–89	1996–97	2004–05	2012–13
<i>Physical Environment</i>						
Housing	1975	1982–83	1990–91	1998–99	2006–07	2014–15
Transportation	1978	1982–83	1990–91	1998–99	-	-
Leisure	1976	1982–83	1990–91	1998–99	2006–07	2014–15
MAIN THEMES SILC in-depth surveys						
Intergenerational transmission of poverty	2005	2011				
Social participation	2006	2015				
Housing Conditions	2007	2012				
Over-indebtedness and financial exclusion	2008					
Material deprivation	2009	2014				
Intra household sharing of resources	2010					
Intergenerational transmission of disadvantages	2011					
Well-being	2013					

Work is currently underway to review the question design and battery of questions. The aim is to reduce the interview time. Today's interview time of about 35 minutes is too long and needs to be reduced to about 20-30 minutes.

Statistics Sweden also plans to introduce component rotation (read: not every year) and remove the ULF in-depth surveys. The changes in the questionnaire are planned to be introduced during 2014. Listening in on telephone interviews will be introduced in 2013 as part of the work to ensure the quality of the interviews.

B Quality declaration

B.0 Introduction

Statistics Sweden declares the quality of surveys according to a quality concept consisting of five main components:

- (1) **Content**, which applies primarily to the statistical target characteristics.
- (2) **Accuracy**, which refers to sources of uncertainty and their impact on the statistics.
- (3) **Timeliness**, which includes time aspects that play a role in how well the statistics describe the current situation.
- (4) **Comparability and coherence**, which refers to the possibilities for comparisons over time and between groups, and to the use of the statistics together with other statistics.
- (5) **Availability and clarity**, which refers to the physical availability of the statistics and their intelligibility.

For more information on the concept of quality of official statistics and a more detailed account of the meaning of the five main components, see the report *Kvalitetsbegrepp och riktlinjer för kvalitetsdeklaration av officiell statistik (MIS2001:1) (Quality definition and recommendations for quality declarations of official statistics)* in the series *Meddelande i samordningsfrågor för Sveriges officiella statistik*. The publication is available on Statistics Sweden's website,

B.1 Contents

1.1 Statistical target characteristics

1.1.1 Objects and population

The survey focuses on producing statistical data for the group of persons who have reached a minimum age of 16 during the survey year. The sample is drawn from persons who are registered in the population register in Sweden. The objects in the report can consist of individuals and households.

1.1.2 Variables

The content in the ULF/SILC is subject to constant revision; indicators are removed and new ones are added. The interview questionnaires are available on

the Statistics Sweden website, www.scb.se/ulf. The following indicators have been included for a number of years.

Indicators that were included only in the 2012 or 2013 survey are marked by *.

THEME: SOCIAL RELATIONS:

Citizen activities:

Main contents: *Organisational Activities - Political Activities*

Indicators

- Membership and active participation in
 - political party
 - residents' association *
 - sports club*
- music, cultural, dance, theatre society *
 - pensioner' association (persons aged 65+) *
 - trade union
 - other types of organisations and associations
- Interest in discussing politics

Social relations:

Main contents: *Household composition and family formation - Contacts with family and friends*

Indicators

- Household composition
- Socialising with children, parents and siblings
- Socialising with other relatives, friends and acquaintances
- Has a close friend

Security and safety:

Main contents: *Victims of violence, threats*

Indicators

- Subjected to violence or threat of violence
 - nature of injuries and consequences

THEME: HEALTH AND CARE SERVICES

Main contents: *State of health - diseases - disability - health care consumption - tobacco habits*

Question areas

- State of health, physical and mental problems
 - E.g. severe pain, obesity, symptoms of distress, worry or anxiety
- Diseases (According to WHO's ICD-10 classification)
 - E.g. heart disease, high blood pressure, diabetes, skin diseases.
- Disability
 - E.g. impaired vision, impaired hearing, reduced mobility

Medical and dental appointments
E.g. doctor visits, unmet health care needs

Tobacco habits
E.g. daily smoker, daily snuff

In-depth questions on health 2012-2013

Uses glasses or contact lenses *
Uses hearing aid *
Sore or bleeding gums *
Loose or movable teeth *
Sad or depressed in the past two weeks *
Alone during the past two weeks *
Diabetes*
Severe or minor symptoms of diabetes *
Psoriasis*
Severe or minor symptoms of psoriasis *
Incontinence and other bladder problems *
Mild or severe symptoms of incontinence/bladder troubles *
High blood pressure*
Severe or minor symptoms of high blood pressure *
Recurring stomach or bowel problems *
Severe or mild stomach or bowel problems *

THEME: WORKING LIFE

Employment and working hours:

Main contents: *Employment relationships - Unemployment experience -
Employment conditions of husband/wife/partner*

Indicators

Current employment conditions
Occupation
Economic sector
Working hours (full-time, part-time, evening, night, shifts)
Reason for part-time
Commute time
Unemployment experience

Work environment:

Main contents: *Physical and psychosocial work environment*

Indicators

Physical work environment

- accidents
- heavy lifting
- repeated and monotonous work movements
- sweaty job
- shaking and vibrations
- noise

- sedentary
- computer work

Psychosocial work environment

- stress
- monotonous
- mental strain
- influence
- opportunities to learn new things
- threat to job security

Finances:

Main contents: *Income, transfer payments - Housing and childcare costs - Access to certain items of equipment*

Indicators

- Income from work for the respondent and any spouse
- Disposable income per person
- Household's average disposable income
- Income before and after tax for the respondent and any spouse
- Income below the national norm for income support
- Income below the norm for social assistance
- Housing costs
- Childcare costs
- Ability to obtain SEK 10 000 within a month
- Economic problems
- Access to a car

THEME: PHYSICAL ENVIRONMENT**Leisure:**

Main contents: *Leisure activities - Vacation travel - Holiday home accommodation*

Indicators

- Holiday travel
- Access to and stay in holiday homes
- Recreation
- Sports activities
- Exercise habits
- Cultural activities
- Access to computer and the Internet in the home

Housing:

Main contents: *Internal and external housing environment - Security and stability in housing - External housing environment - Opinions about the dwelling and surrounding area*

Indicators

Type of housing, form of tenure
 Living space standard, overcrowding
 Dwelling equipment
 Neighbour contacts
 Vandalism in the neighbourhood
 Home insurance

1.1.3 *Statistical measures*

The survey reports mainly on *the proportion* of objects (usually individuals or households) with a certain property as well as the *total* objects with a certain property in the population and study domains.

1.1.4 *Study domains*

The survey contains a number of study domains. Among the most important include sex, age, type of household, region, socioeconomic group, and foreign and Swedish backgrounds respectively. Values are not reported for study domains with fewer than 100 interviews.

1.1.5 *Reference times*

Data were collected in a number of production rounds distributed throughout the year (16 rounds). This provides annual averages for the different survey variables. The following reference times were used in addition to the actual time of the interview: *last week, last fortnight, 2 months, 3 months, and 12 months*.

1.2. **Comprehensiveness**

The ULF/SILC highlights living conditions by the use of a large number of welfare components. The study of each welfare component gains depth since it will reappear in the survey as the main theme every few years. For 2012, this applied to health and care services (will also apply in 2013).

B.2 **Accuracy**

2.1 **Overall accuracy**

The accuracy of a survey is affected by the following sources of uncertainty:

- Specification errors (see below and 4.1 *Comparability over time*)
- Sampling errors (see 2.2.1 *Samples*)
- Frame errors (see 2.2.2 *Frame coverage*)
- Measurement errors (see 2.2.3 *Measurement*)
- Non-response errors (see 2.2.4 *Non-response errors*)
- Processing errors (see 2.2.5 *Processing*)

Calculating the overall error requires knowledge of the magnitude of the various sources of uncertainty. The knowledge that exists is not quantifiable at all points, so precise estimates of the magnitude of the error can rarely be made.

Specification errors

Specification error occurs when what is intended to be measured is not measured, for example because a question is incorrectly formulated. The question regarding weekly exercise habits can serve as an example of specification error. Nowadays the interviewer emphasises that walking at least 30 minutes also counts as exercise. In previous years there was a high risk of systematic underestimation of exercise among individuals when walking was not listed among the examples of exercise in the interviewing instructions. (Even though the interviewer may sometimes have highlighted walking as an example of exercise.) This was despite the belief that walking should be treated as equivalent to running, aerobics, etc. in this regard.

Because this type of error risks degrading the quality of the survey, representatives from various groups who are knowledgeable in their subject areas are regularly called together. The reference groups provide feedback regarding the questions proposed for inclusion in the respective years of the questionnaire. The aim is to jointly discuss how these questions can be best formulated to avoid different types of errors. In addition and especially before an in-depth survey, experts in measurement methodology are always involved in the work of creating new questions and, if necessary, adjusting questions that contain any measurement deficiencies.

Random errors

The non-systematic error is an expression of the random deviation from the estimate's expected value, and occurs in part because only a random sample of the population has been surveyed. When the number of measurements is increased, the estimated parameter value is assumed to approach the true parameter value. An example of parameter estimation in the ULF/SILC that supposedly contains only random errors is access to a computer. The question posed is easy to understand and should not lead to any other types of errors than a sampling error.

Systematic errors

A systematic error leads to bias and occurs when the estimate's expected value differs from the parameter's true value. In contrast to the random error, the systematic error deviates constantly in one direction, which means that the error cannot be reduced or completely removed by increasing the number of measurements. The reason for the presence of systematic errors can, for example, be due to the estimator's mathematical properties or systematically erroneous estimates. For various reasons, the persons included in the sample can give an incorrect value for a variable that either leads to a systematic overestimation or underestimation of a parameter. An overestimation or underestimation can be made by several individuals in a sample in a non-random way and this in turn is partly due to the sensitivity of the issue in the interview (personal finances,

diseases, exposure to violence, etc.) and partly due to the individual questions in the ULF/SILC questionnaire containing words or phrases that contribute to a certain bias.

The magnitude of the systematic errors can often be subject only to an assessment. However, it should be noted that the same source of uncertainty can have different effects on different estimators.

Both random and systematic errors can in turn be divided into errors caused by non-observation (caused by the inability to interview the whole sample), and observation or measurement error (which causes the value to differ from the "true" value for the variable intended to be measured). The various sources of uncertainty that are discussed below are grouped according to this division. Note that they may contain contributions from non-systematic and systematic sources.

In principle, an assessment of the various sources of uncertainty should be made for each estimate. The assessments of the impact of different uncertainty sources that are reported are in the form of generally held opinions, and the impact may be different in individual cases. This applies especially to sensitive variables and small study domains.

Sources of error in telephone interviews

The data collection that currently takes place via telephone may result in some errors that do not occur in face-to-face interviews. A disadvantage of telephone interviews is that the respondent does not have the same opportunities to give accurate answers to questions involving some ability to remember events in the past. A couple of questions on health and leisure measure, for example, the frequency of visits to the doctor and/or dentist and the number of times the respondent has exercised over a long period of time. In face-to-face interviews, the respondent has more opportunities to refer to documents, receipts, etc. if necessary in order to verify that a particular event had taken place, such as a visit to the doctor.

Some questions that require detailed explanations of what really should be measured can also risk generating more uncertain responses by telephone compared with face-to-face interviews. Previously, the interviewer could clear up to a greater extent any misunderstandings with the respondent on an issue "eye to eye", while telephone interviews tend to create a more stressful interview situation for the respondent.

Advantages of telephone interviews

The use of the telephone as a tool for collecting data also has certain advantages compared with face-to-face interviews. One advantage is that the so-called interviewer effect is smaller in telephone interviews. Interviewer effect refers to the problem that arises when the interviewer and the respondent's conduct are liable to affect the question as well as the response. This may happen, for example, when you observe the other person's body language and facial expressions. Another advantage is that both the interviewer and respondent may feel more anonymous. In addition, telephone interviews are more time efficient,

which makes data collection less time-consuming. Moreover, the cost of collecting data via telephone is lower compared with face-to-face interviews.

2.2 Sources of uncertainty

2.2.1 Samples

In 2012, the sample for the ULF/SILC consisted of 19 500 individuals aged 16 and older. The ULF sample consists of four subsamples including individuals who were included in the 2004 panel. The ULF sample is drawn as a stratified sample with independent random sampling within each stratum. The samples are drawn one at a time, as shown below, where the frame is corrected after each subsample so that an individual may only be selected once.

There are four subsamples in the SILC, where each sample corresponds to a panel.

The ULF subsamples	Description	Number in the sample
1	Individuals in the panel recurring every eight years. The first sample for the 2012 survey was drawn in 1980. This sample has been supplemented every eight years; see subsamples 3 and 4. Thus the panel has been filled before the survey years 1988, 1996 and 2004.	4 000
2	Supplements the panel with individuals born 1920-1988 and who have immigrated during the period 2011-10-01 - 2003-12-01. Refers to both the ULF and SILC parts of the survey.	200
3	Supplements the panel with individuals aged 16-23, who were born 1989-01-01 - 1996-12-31. Refers to both the ULF and SILC parts of the survey.	500
4	Is drawn from Sweden's population who were born not later than 1996-12-31, i.e. individuals aged 16 and older.	2 900
5	An additional sample of individuals aged 65 and over. It is drawn at the same time as subsample 4.	1 500
SILC subsamples	Description	Number in sample
1	The SILC panel for year 1, who are also	3 000

	included in the ULF, refers to persons aged 16 and older.	
2	The SILC panel for year 2 refers to persons aged 16 and older.	2 900
3	The SILC panel for year 3 refers to persons aged 16 and older.	2 300
4	The SILC panel for year 4 refers to persons aged 16 and older.	2 200

The size of the sampling errors or random errors in the results can be estimated using confidence intervals. The confidence intervals were calculated as 1.96 * standard error. The confidence level in these intervals is 95 percent and is a measure of the probability that the chosen procedure will obtain an interval that contains the true population value.

2.2.2 *Frame coverage*

Coverage error in a survey can consist of undercoverage and/or overcoverage.

Undercoverage means that some objects in the surveyed population are missing in the sample frame, or are not yet included in the register. Undercoverage in the ULF/SILC would mean that there are persons who permanently reside in Sweden but who are not registered there, and thus not included in the Total Population Register, TPR. Undercoverage in the ULF/SILC is small both absolutely and relatively, which is why the impact of the undercoverage errors on the statistics is negligible.

Overcoverage is another type of coverage error that occurs if objects that do not belong to the target population are included in the sample frame and can be included in the presentation of results. The presence of overcoverage creates no systematic errors because this (deceased, emigrants) is eliminated before the interviews. However, it has the effect that precision would be less if no overcoverage had been found. However, this effect is very weak in the ULF/SILC. The overcoverage comprises about 1 percent of the sample/population.

In addition there are persons who are listed in the sample frame but who do not belong to the target population. These can be persons who have left the country without informing the tax authorities. This type of overcoverage is concealed and hidden among those in the sample that are "not contacted". In the series *Bakgrundsfakta för befolkning och välfärdsstatistik (Background facts on population and welfare statistics)*, *Övertäckningen i Registret över totalbefolkningen (Overcoverage in the Total Population Register)* was published in the 2010 report, where the following assessment was made of the extent of overcoverage in the 2005 TPR:

"In 1997, overcoverage was estimated at 25 000 - 50 000 non-Nordic citizens aged 20 and older. The 1998 Registerspåret (register-based method for estimating overcoverage in population registry) estimates overcoverage to al-

most 20 000 based on the same definition. During the 2000s, the Register-spåret's overcoverage increased by about 33 percent. It is reasonable to assume that if the 1997 survey had been redone in 2005, it would also find an increase in the estimate of the size of overcoverage.

Depending on the assumptions regarding mortality rates, overcoverage could be estimated at between 38 000 and 47 000 persons with foreign citizenship. If you use the mortality rate for foreign born persons, overcoverage would be of the order of 57 000 to 74 000 foreign born persons. If you make different assumptions about the relationship between the mortality rates for foreign born persons and persons born in Sweden you will arrive at other levels."

The entire report can be found at the following link:

http://www.scb.se/statistik/publikationer/BE9999_2009A01_BR_BE96BR1005.pdf

The sample is supplemented by older persons (aged 65 and older) with the so-called older addition. This is done on behalf of the Ministry of Social Affairs. The purpose of expanding the sample of persons aged 65 and older is to be able to report results for this age group. Most of these questions concern only a subset of the respondents and therefore a larger sample is needed.

2.2.3 *Measurement*

Data for ULF/SILC are collected by interviewers at Statistics Sweden through computer-assisted telephone interviews (CATI, Computer-Assisted Telephone Interviewing) using a developed questionnaire.

The interviewer may misunderstand the instructions or the respondent's answers, which contributes to the systematic error. The interviewer's personality and behaviour may also affect the responses, especially in relation to "subjective" questions, such as attitude questions. Statistics Sweden's training for interviewers focuses on the prevention of measurement error. Despite the training efforts, the occurrence of measurement errors by interviewers cannot be excluded. However, it is not known how large this error is because no studies have been conducted yet.

Memory error

Respondent error may be due to memory error, which means that the respondent unconsciously distorts the answer, or that he or she simply cannot answer the question. Most of the ULF/SILC questions concern the current situation, where memory does not play a major role as a source of error. However, the answers to questions such as "How often in the last 12 months?" should be interpreted with caution.

Attitude questions and questions of distance

One source of error can be that respondents during the interview seek to portray themselves in as good light as possible. Therefore, they are anxious to give "socially acceptable" answers or answers that they think the interviewer would

also agree with. The ULF/SILC contains only a few attitude questions that could involve this risk. However, some questions are included about habits and behaviours where the effect of this source of error cannot be ruled out.

The questions in the ULF/SILC for 2012 are more or less easily answered. However, special caution should be taken when interpreting answers to attitude questions, questions of distance, and questions on how often someone does something, for example exercises or meets with family and friends. These types of questions are only a small portion of the questions that are reported in ULF/SILC 2012.

Field Coding

An additional source of error may be the use of interview coding ("*Field coding*"), i.e. when the respondent is asked a question and formulates an (open) answer, which the interviewer must interpret and finally encode as a fixed answer alternative. Interview coding places a large responsibility on interviewers and there is a clear risk of measurement errors, at least if the interviewers do not receive clear instructions and training on how to handle this type of interview situation. There are questions in the ULF/SILC where interviewer coding is used. Interview coding can function relatively well even in a telephone interview, but it requires that the answer alternatives are mutually exclusive and that there is an interpretation of the question that is actually correct and one that is wrong. The more room for interpretation a question provides, the more difficult it can be to place responsibility for interpreting with the interviewers. There is an awareness of possible problems with interview coding, which is something that is now considered in the implementation of cognitive testing or desktop testing of the questions.

Proxy interviews

Proxy interview refers to the interview being conducted with a person other than the one selected to participate in the survey. Under the conditions of the survey, this person must thoroughly know the respondent's circumstances - preferably husband/wife/partner, parents, adult children. A counsellor or head nurse at a health care institution may also be considered. However, the interview must be made primarily with the sample person, i.e. direct interview. In proxy interviews, such questions that another person cannot likely answer in the sample person's place are skipped.

Proxy interviews are not relevant in the following cases:

- When the sample person is ill and is not expected to recover during the period of fieldwork.
- When the sample person is suffering from some chronic illness that prevents an interview, e.g. if the surveyed person suffers from deafness, senility, mental retardation, etc.
- When the sample person does not speak Swedish, and it is not possible to use an interpreter.
- When the sample person cannot be reached by the end of the fieldwork period.

Experience indicates that proxy interviews can be used very well. However, some problems may occur. For example, the 'proxy' respondent may believe they know the respondent's working conditions, but does not in fact know that the respondent has changed working duties and thus had changed working conditions. In proxy interviews, questions are excluded that are considered inappropriate to ask indirectly. In addition, proxy interviews represent a very small percentage (about 2 percent) of the total number of interviews.

Another type of interview is conducted with sample persons with the help of an interpreter. Starting with the 2012 survey, only professional interpreters are used in the survey. The proportion of interviews conducted with an interpreter is about 0.4 percent

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 an issue of *unit non-response*; if only certain values are missing, this is an issue of *item non-response*.

Unit non-response

Non-response in the 2012 ULF/SILC survey was about 42 percent for the group aged 16 and older. The non-response was distributed across the categories:

- Not contacted 16.6 percent
- Declined participation/refusal 20.5 percent
- Unable to participate 4.8 percent

Item non-response

In addition, there was an item non-response of varying sizes for the different questions. Below are some examples:

- Work environment: 0.1 percent - 1.3 percent (an average of 0.4 percent)
- Citizen activities: 0 percent - 1.3 percent (an average of 0.2 percent)
- Social relations: 0 percent - 0.6 percent (an average of 0.2 percent)

Two examples of questions with a comparatively very high proportion of item non-response (do not know/refuse to answer) are:

Is/was the highest completed level of education that your father passed compulsory, secondary, or post-secondary?

The item non-response here was 10.4 percent. Note, however, that the question will be removed from the 2014 survey.

Is/was the highest completed education that your mother passed compulsory, secondary, or post-secondary?

The item non-response here was 7.1 percent. Note, however, that the question will be removed from the 2014 survey.

For a number of questions in Security and safety that deal with where the respondent (if applicable) has been threatened and/or been a victim of violence that did *not* require medical or dental care, there is an average item non-response of about 12 percent.

Non-response in various subgroups

Both the total non-response as well as the cause of non-response varies between different subgroups. For example, the percentage of non-response differs between different age groups. Persons who are unmarried have "not contacted" as the cause of non-response to a greater extent than married/cohabiting persons. Non-response is higher in the age group 25-44 than in other age groups, while those aged 65-84 participate to a greater extent in the survey. Non-response is also relatively high among immigrants. The analysis of non-response in the 2012 ULF/SILC shows a 52 percent non-response for foreign born persons aged 16-84 and the corresponding figure for Swedish born persons is 40 percent. Foreign born persons have had a higher non-response than Swedish born persons since 1999 (the first year for which data enable a breakdown).

Non-response errors

Non-response error in the estimate arises if the survey variable differs between those who have responded and those who have not responded. Assessments of the magnitude of non-response error are generally very difficult to make.

For example, a non-response error could result in the overestimation of certain parameters. If a relatively large proportion of those aged 65 and older participate in the survey, and you can assume that for example the living standard is high in this group, you risk obtaining a higher value for the whole population in terms of living standards. A slight distortion of the results will thus be the result of unequal representation of different age groups.

Auxiliary variables and calibration

A set of auxiliary variables are used in the estimation to reduce any possible non-response distortion effects. These variables are characterised by having a strong relationship with the central survey variables that are measured in the ULF/SILC and/or the distribution of non-response. Auxiliary variables are taken from the *Total Population Register (TPR) Register of Education and Revenue and taxation register*. Auxiliary variables are then used in the estimation to calibrate (adjust) estimates against the known register totals for the same variables. The auxiliary variables included are: sex, age, region, property tax (property tax or not), statement of earnings and tax deductions filed by employer, (statement or not), social assistance (payment or not), immigrated (immigrated since 2000 or not), Swedish born, education and marital status, and telephone number (known or not).

Calibration means that persons belonging to those groups that are overrepresented among those who do not participate in the survey (e.g. foreign born persons

aged 25-44) are given a greater weight in the estimation. Somewhat simplified, calibration can be explained in that you first examine how non-response is distributed among different groups, such as common study domains. Then you find out what proportion of the population that the groups represent and allow the respondents in each group represent the proportion of the estimates. This means that a group with high non-response will still be represented to the same extent that they represent in the population. Thus the idea is to reduce the impact of certain underrepresented groups in the data for the parameter estimates.

The number of auxiliary variables has been increased in recent years to reduce the impact of bias in the estimates. By taking into account more background factors among the persons who answer the survey, it is possible to reduce the negative impact of a number of study domains that are underrepresented in the survey.

The use of auxiliary variables can reduce but not completely remove the impact of biases. Every person who does not participate in the survey has to some extent unique characteristics that cannot be replaced by an auxiliary variable. The proportion who do not participate in the survey is, for example, larger among foreign born persons than among those born in Sweden, while the living conditions of these two groups can differ quite a lot which applies, for example, to a couple indicators of the housing component. Calibration aims to correct this.

2.2.5 *Data processing*

Data processing errors may occur if the instructions for data entry, checking and coding lead to misunderstandings. Processing error can also occur during the production of tables. Most processing errors are eliminated through controls followed by correction. Statistics Sweden works continuously to minimise the risks of negative influences on the accuracy of the statistics due to human factor errors, both as a preventive measure and by quick action when such errors are discovered. Some small studies of coding quality (coding of socioeconomic group, disease) suggest that only minor errors occur. Errors have arisen in the production of tables but only in exceptional cases. The errors may be due to the software used to produce these statistics has contained incorrect programming code or errors were made when entering the values in the tables.

In recent years, the limit for the number of interviews in the reporting of a particular estimate has been increased from 50 to 100. The limit has been raised in an effort to reduce the risk of disclosure of personal data, but also to improve the quality of the estimates. A higher minimum limit for the number of interviews in reporting results in shorter confidence intervals.

Beginning 2012, control coding takes place within ULF/SILC. The purpose of control coding is to investigate if the coded responses of the respondents seem reasonable. It also aims to correct improperly set codes. Control coding can reduce the risk of error in the statistics by treating unreasonable responses before these risks affecting the estimates.

2.2.6 *Model assumptions*

No other model assumptions are made in the ULF survey than the methodology described above.

2.3 **Reporting of uncertainty measures**

The margin of error (read confidence interval) is calculated for the percentage estimates reported in the *Statistical Database (SSD)* and in tables and reports. These uncertainty figures include the margin of error for random sampling error. The more detailed the data are reported, the more uncertain the data. The margin of error varies between 0-10 percent in the presentation of the various indicators. In general, the margin of error is larger for the smaller study domains. This applies, for example, to Swedish born persons with two foreign born parents, which is one of the smaller study domains with respect to the number of interviews.

Uncertainty figures for other sources of error have not been calculated.

B.3 **Timeliness**

3.1 **Frequency**

The surveys are conducted continuously during a calendar year and are published twice each year. One publication refers to indicators that belong to the ULF part of the survey, while the other publication relates to the indicators within the SILC. Country comparisons are also published for the constituent countries of the SILC.

For the 2012 survey, there was a delay for the related ULF part of the ULF/SILC that resulted in only one publication of the 2012 survey in 2013; see Section 3.3 below, Punctuality.

3.2 **Production time**

Production time for the 2012 survey was about nine months, i.e. publishing takes place about nine months after completion of data collection. However, production time is usually about five months. See Section 3.3 *Punctuality* below for the reason for the poorer production time for the 2012 survey.

3.3 **Punctuality**

Publication of the ULF indicators in the ULF/SILC was originally scheduled for 29 May, but was postponed to 16 September. The reason was unexpected staff departures. The publication of the SILC part of the survey was postponed to 28 January 2014.

B.4 Comparability and coherence

4.1 Comparability over time

The survey was conducted using essentially the same definitions and data collection methods (face-to-face interviews) during the period 1975 to-2005. The possibilities for comparisons over this period are therefore very good. The questionnaire was subsequently adapted for face-to-face interviews with answer forms (which the respondent had read) for questions with complex alternative answers. However, telephone interviews were also made prior to the survey; for example, in 2005 about 26 percent of the interviews were made by telephone.

In 2006, about one-half of the interviews were face-to-face interviews and about one-half were only telephone interviews. The regular ULF sample in the age group 16-84 of about 7 300 persons was randomly divided into two parts. The first half used face-to-face interviews as the primary method of data collection, while telephone interviews (Computer, Assisted Telephone Interviewing, CATI) were used for the other half. Before the telephone interviews, some alterations were made to the questionnaire and computer-assisted interviews were used. Analyses of the material show no trends in either direction, i.e. neither method gives estimates that are consistently above or below the other.

The change in methodology to partial use of telephone interviews in 2006 and full-scale use beginning 2007 nonetheless involved deterioration in comparability for a number of indicators. However, the change in method is usually not behind this, but rather changes in the formulation of the questionnaire and definitions. The results are affected by the change in method as the interview situation had changed and because the questions had changed with respect to their construction and definition. The telephone interviews were assumed to be unable to provide the same opportunity to clarify any misunderstandings as is the case in face-to-face interviews, which in turn may lead to differences in results between years due to different methodological choices. In addition to the change in methodology, the wordings and definitions among some questions were also changed which also weaken the ability to compare results over time. About one-quarter of the indicators can be compared over time up to the end of 2012, while you should be more cautious with the other indicators in a time series study.

Since many users wanted to be able to compare results over a long period of time, the ULF/SILC survey also has a number of questions that were not significantly changed. Adjustments in the formulation of questions and/or answer alternatives can result in a break in a time series. On the other hand, there is a risk of validity problems if a questionnaire does not capture what it intends to measure. In other words, it is important to adapt the questionnaire so that respondents understand a question in the way it is intended. If a question is interpreted differently today compared with previously, there is a risk of obtaining inaccurate answers which cannot be compared with response data from previous years.

The report *Förändringar i Undersökningarna av levnadsförhållandena 2006–*

2008 (*Changes in surveys of living conditions 2006-2008*) in the series *Bakgrundsfakta för befolknings- och välfärdsstatistik, 2010:4* (*Background facts on Population and Welfare Statistics, 2010:4*) provides detailed information about the transition from face-to-face interviews to telephone interviews and the impact this had on comparability over time. The report is available on the Statistics Sweden website at the following link:

http://www.scb.se/Pages/PublishingCalendarViewInfo_259923.aspx?PublObjId=12340

4.2 Comparability between domains

Data from the ULF/SILC interview are used to form various study domains. This enables comparisons between domains, for example, Swedish/foreign background, blue collar/white collar/self-employed households, and single/cohabiting with or without children who reside in different types of municipalities. However, the possibility of comparing living conditions of Swedish and foreign born persons, for example, is weakened to some extent due to the relatively high non-response among foreign born persons. In general, however, results can be compared between domains.

4.3 Coherence with other statistics

The ULF/SILC is a unique data source in many respects. Many other surveys often utilise ULF/SILC questions in order to use the ULF/SILC as reference material. The income component of the ULF/SILC is conceptually coherent as far as possible with the survey on household finances (HEK).

Surveys of the living conditions of children (Barn ULF) are partly based on data from the ULF/SILC and can be used together with the ULF survey.

B.5 Availability and clarity

5.1 Dissemination forms

Results of the surveys are published annually through press releases, tables, graphs, reports and statistics in the database. Planned publication is reported in the publishing calendar for official statistics. All forms of dissemination are available on Statistics Sweden website, www.scb.se/ulf.

The Statistical Database and ULF/SILC's web pages contain extensive results and table material from ULF/SILC, www.scb.se/ulf.

Published reports are freely available in PDF format via the Statistics Sweden website. The reports usually contain tables and graphs, as well as both technical and commentary text.

5.2 Presentation

A number of welfare indicators, the current situation and development 1980-2012, related to a large number of study domains are presented in the *Statistical Database* (SSD) and/or Excel tables on Statistics Sweden's website, www.scb.se/ulf. The reports usually contain tables and graphs, as well as technical and commentary text.

5.3 Documentation

The production of the statistical register and the statistics is described in *Documentation of statistics (SCBDOK)*. The quality of the statistics is described in the current document, *Description of Statistics (BaS)*. Detailed information about microdata is presented in the *Documentation of microdata (MetaPlus)*. All documentation is available on the Statistics Sweden website, www.scb.se/ulf. The questionnaire is also published there.

5.4 Access to microdata

Statistics Sweden performs special processing of the ULF/SILC (all years) on a commission basis. Researchers and analysts may gain access to anonymised microdata following special consideration. Release of the data is currently via the so-called MONA system (Microdata Online Access), which means that access to the data material is provided via a connection to Statistics Sweden's special Internet domain for data delivery.

Access to microdata from the EU-SILC parts of the ULF/SILC survey requires an application to Eurostat. More information on the application process can be found on the Eurostat website

http://epp.eurostat.ec.europa.eu/portal/page/portal/microdata/eu_silc

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