Analysis on nonresponse bias for the Swedish Labour Force Surveys (LFS)

SCB

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Foreword

Statistics, regardless of whether they are based on registers or sample surveys, are affected by uncertainty and various types of error. The quality of statistics based on sample surveys is largely a function of how uncertainty from sampling, frame coverage, measurement, nonresponse and data processing is taken into account.

The Labour Force Surveys (LFS) is a large sample survey conducted monthly to describe the current labour market, for example unemployment and employment. Since the LFS is a survey important to society, it is important to be able to give an accurate description of the quality in the statistics. Statistics Sweden (SCB) has therefore conducted a nonresponse analysis focusing on the most central variables of the survey.

This work is included in a more comprehensive effort with the aim to analyse the quality of the LFS. This work also includes a study of the frame coverage of the LFS.

The study was conducted using available register data. In this method, central variables in the LFS are approximated by register data. A limitation in this kind of approach is that the correlation between the variables of the LFS and register data is not complete. The method has been chosen despite this limitation as register data is easily accessible at Statistics Sweden and because alternative methods cannot be implemented with an acceptable quality at a justifiable cost.

Martin Axelson, Vanja Hultkrantz, Pär Sandberg, Fredrik Olsson and Frida Videll have conducted the study and prepared the report. A reference group consisting of Elisabet Andersson and Magnus Sjöström was tied to the project. In addition, Anton Johansson contributed suggestions to improve the readability of the report.

Statistics Sweden May 2017

Petra Otterblad Olausson

Magnus Sjöström

A note of thanks

We would like to express appreciation to our survey respondents – the people, enterprises, government agencies and other institutions of Sweden – with whose cooperation Statistics Sweden is able to provide reliable and timely statistical information meeting the current needs for our modern society.

Contents

Summary

All statistics are affected by uncertainty; in SCB-FS 2016:17 "Statistics Sweden's regulations regarding quality for official statistics", the term quality is described and an important dimension of the quality of statistics is their reliability (or uncertainty). Information on reliability is a prerequisite for users to be able to use the statistics in a correct way. The reliability in the statistics depends largely on the chosen estimation procedure and how well it takes into account uncertainty that can be traced to the sources of uncertainty related to sample, frame coverage, measurement, nonresponse, data processing and model assumptions. This report addresses nonresponse error and its effect on the quality of statistics in the Labour Force Surveys (LFS) with the aim of validating the accuracy of the LFS's estimates.

To analyse the nonresponse error, various methods can be used; the results in this report are based on a register-based analysis. There are both advantages and disadvantages of such a method compared with the alternative of conducting a nonresponse follow-up according to the Hansen-Hurwitz method[1]. Two main reasons determined the choice of a register based analysis. One of the reasons is that Statistics Sweden has good access to register information that makes it possible to use relevant register variables. Another reason is that it is not considered to be possible to conduct an analysis according to the Hansen-Hurwitz method with an acceptable quality at a justifiable cost.

In the register-based analysis, important target variables in the LFS are approximated with register variables. The analysis builds on the correlation between these target variables and the register variables with which they are approximated. Based on the register variables, the estimated nonresponse bias has been calculated through the difference between the estimate that is based on the response set and the corresponding estimate based on the sample set. The estimated nonresponse bias is reported together with its measurement of uncertainty. To relate the size of the bias to the size of the estimate, the estimated relative bias, expressed as a percentage, with its corresponding measurement of uncertainty has been calculated. The estimated nonresponse bias and the estimated relative bias can provide an indication of how the estimates in the LFS are affected by nonresponse.

An overall analysis has been conducted for a longer period while an in-depth analysis has been conducted for 2015. In the in-depth analysis, nonresponse bias has been studied based on selected study domains based on the background variables; gender, age, born in Sweden or foreign born and level of education. The analysis has been conducted for nonresponse bias for estimates of level and for estimates of change.

For estimates of level, register variables have been used to classify employed persons according to RAMS[2], unemployed persons according to Af[3], not in the labour force (formed by those who are neither employed according to RAMS or

[1] Builds on a sub-sample selected from those classed as nonresponse. From those belonging to the sub-sample, variable information is collected that is missing upon which analyses regarding nonresponse bias are done.

[2] RAMS - Register-based labour market statistics

[3] Af – Swedish Public Employment Service

unemployed according to Af), employed persons according to RAKS[4], students according to RPU[5], three different income groups according to IoT[6] and young people who neither work nor study according to UVAS[7].

Several of the bias estimates are found to be significantly different from zero and it is thereby not possible to conclude that the statistics are not affected by nonresponse bias. For the total population aged 16-74, the relative bias for employed persons is 1.1 (±0.4) percent, unemployed persons 2.9 (±4.9) percent, those not in the labour force -2.7 (±0.9) percent, employees 1.9 (±0.6) percent, students 10.2 (±2.2) percent, income group 1:-2.1 (±0.8) percent, income group 2: -5.9 (±1.6) percent and income group 3: 5.7 (±0.9) percent. The income group with the lowest relative nonresponse bias, income group 1, is comprised of individuals with an income that is lower than SEK 60,000 for women, lower than SEK 80,000 for men and those who lack information on income.

The size of the nonresponse bias varies over the study domains included in the analysis. The study domains that show the highest level of nonresponse bias is level of education. This is true for all studied register variables. The bias estimates show that estimates for the group with primary and lower secondary education are generally underestimated and that the estimates for the group with post secondary education are overestimated.

For the register variable UVAS, which is similar to the LFS variable NEET[8], the estimates of level that are based on the response set are consistently lower than the corresponding estimates that are based on the sample set. For this study domain, a relative bias on the scale of 30 percent is observed. This means that compared with the sample set, an underestimation of around 30 percent is obtained for the different background variables.

To study the possible effect of nonresponse on estimates of change, a variable based on register variables was created to identify employed and unemployed persons on a monthly basis. Based on this variable, estimates of change have been computed by comparing corresponding months in consecutive years. Estimates of change have been calculated based on the response set and the sample set respectively. These analyses have been conducted with the same study domains as those for estimates of level. For unemployed persons, the response and sample set show the same pattern for the estimates of change, and the difference between the response and sample set is small. For employed persons, similar results are obtained except for the background variable education. For employed persons with upper secondary education, the change estimate based on the response set is systematically lower than the corresponding estimate based on the sample set. For post secondary education, the relationship is the opposite. For this group, the estimate based on the response set is systematically higher than the corresponding estimate based on the sample set.

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[4] RAKS - Activity Statistics based on administrative sources

[5] RPU - Register on participation in education

[6] IoT - Register on income and taxation

[7] UVAS - Register over young people who neither work nor study

[8] NEET - Not in employment, education or training

In summary, for estimates of level, the estimated relative bias, in absolute terms, is generally around 1-3 percent on an aggregated level. The relative bias have been relatively constant in recent years despite the increase in the nonresponse rate. For variables where a larger relative bias is observed, the variables affected are ones that to a higher extent comprise young people. These variables are students and UVAS. Level of education shows a larger relative bias than other study domains, where estimates for those with primary and lower secondary education are generally underestimated and estimates for those with post secondary education are generally overestimated.

For estimates of change, the pattern is largely the same for the response and sample set when unemployed and employed persons are studied. The exception is employed persons by level of education. The change estimate that is based on the response set is, for the employed persons with upper secondary education, systematically lower than the corresponding estimate based on the sample set. For the employed persons with post secondary education, the change estimate based on the response set is systematically higher than the corresponding estimate based on the sample set.

1 Introduction

1.1 Background and purpose

Like all other statistics, the statistics that are produced in the scope of the Labour Force Surveys (LFS) are affected by uncertainty. In SCB-FS 2016:17, "Statistics Sweden's regulations regarding quality for official statistics", a quality concept is stipulated that will be used in the development and production of official statistics and in their dissemination, including quality declarations. An important dimension of the statistics' quality is its reliability (or uncertainty) – information on reliability is necessary for users to be able to use the statistics in a correct way. The reliability of the statistics is largely a consequence of the estimation procedure and how well it manages to take into account uncertainty that can be traced to the following sources of uncertainty: sample, frame coverage, measurement, nonresponse, data processing and model assumptions. This report addresses nonresponse error and its effect on the quality of the statistics of the LFS. The purpose of this report is to validate the accuracy of the estimates of the LFS.

Diagram 1.1. Nonresponse rate in the LFS. Year 2002-2016. Percent.

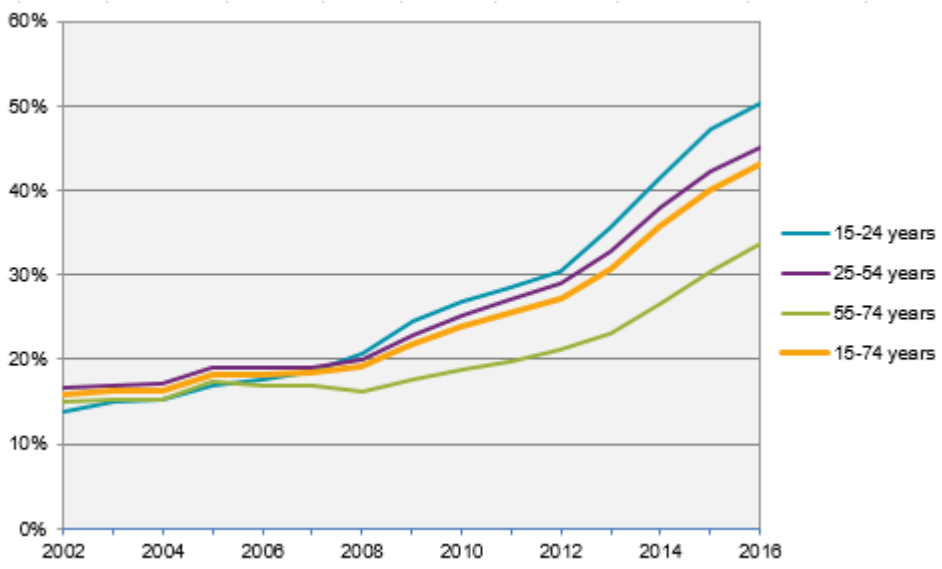


Diagram 1.1 shows the development of the unweighted nonresponse by age from 2002 to the end of 2016. During the earlier part of the 2000s, nonresponse was 15-20 percent and there was not a large difference in nonresponse rate between the different age groups. Around 2008, nonresponse began to increase. This increase concerns all age groups, but is most prominent in the age groups 15-24 years and 25-54 years.

In 2016, the nonresponse in the whole of the LFS, 15-74 years, was 43.0 percent. The highest nonresponse was in the age group 15-24 years with a nonresponse rate of 50.0 percent. The age group 25-54 years had a nonresponse rate of 45.0 percent and the lowest nonresponse rate was in the age group 55-74 years where the nonresponse rate was 33.7 percent. A more detailed picture of nonresponse in the LFS is presented in Statistics Sweden (2015a).

1.2 Report structure

The report begins with two chapters of an in-depth nature. Chapter 2 provides an overall description of the LFS with a focus on its purpose, sample process, data collection and estimation procedure. Chapter 3 consists of a more theoretical description of what nonresponse is and the possible consequences that nonresponse may entail. The chapter is concluded with a description of methods that exist for studying the effects of nonresponse.

Chapter 4 studies the consequences of nonresponse for the LFS. The chapter begins with a section that describes why the study has been conducted and what method has been chosen and is concluded with an empirical analysis. The empirical analysis is implemented with a register based analysis for the central variables of the LFS broken down by selected background variables. The analysis is concluded by studying the possible effects of nonresponse on change estimates. Lastly, Chapter 5 contains a summary and conclusions.

2 Description of the LFS

2.1 The purpose and structure of the LFS

The purpose of the LFS is to describe the current labour market conditions for the entire population aged 15-74 and to give information on the development of the labour market. The LFS is the only source that continuously provides a coherent picture of the labour market: employment, unemployment, hours worked, etc. and it is regulated according to several international ordinances.

The LFS is a sample survey based on individuals and it is conducted every month throughout the year. The sample individuals answer questions about their situation on the labour market during a specific week, called the reference week, of the reference month. The structure is such that all weeks during the year are studied. The results of the monthly surveys are published shortly after the end of the reference period. These results also form the basis for estimations of quarterly and annual averages.

The LFS is a panel survey with a rotating sample where the sample individuals participate once per quarter for a total of eight times. This means that 7/8 of the sample is repeated at a three month interval and 1/8 of the sample is replaced with new sample individuals.

For more information on the LFS, see Statistics Sweden (2016a).

2.1.1 Variables

The main target variables in the LFS are: the labour force, employed persons, unemployed persons, not in the labour force and actual hours worked.

The labour force consists of those who are either employed or unemployed according to the definitions below. Others are classified as not in the labour force.

Employed persons consists of those who performed any work (at least one hour) during the reference week. The employed persons also consists of those who did not do any work, but who had a job as an employee, were family workers or self-employed and were temporarily absent during the entire reference week and persons who participated in certain labour market policy programmes.

The unemployed persons include those who were without work during the reference week but who applied for work during the last four weeks (the reference week and three weeks back in time) and were able to work during the reference week or begin within 14 days from the end of the reference week. The unemployed persons also include those who have gotten work that will begin within three months, on the condition that they could have worked during the reference week or begin within 14 days from the end of the reference week.

Those not in the labour force consists of the persons who are neither employed nor unemployed, such as students, pensioners and those who had a long-term illness.

The number of hours actually worked is the hours that a person has worked during the reference week.

For a more detailed description, see *Terms and definitions LFS* on Statistics Sweden's website www.scb.se/AM0401.

2.2 The sample process of the LFS

The sample for the LFS is selected in November every year to cover the need for new sample individuals that will be brought in the sample during January-December the upcoming year. The size of the annual sample is thereby adapted to replace the eighth that is dropped every month.

As of January 2010, the monthly sample was increased by 8,000 persons and includes a total of about 29,500 persons. This increase in the sample was done on behalf of the Swedish Government with the aim to describe the labour market situation for the population in a more detailed way and also describe the dynamic in the labour market through in-depth flow statistics. In continuation, the sample of around 21,500 persons before the increase is called the regular sample and the sample of around 8,000 persons is called the supplementary sample.

For a more detailed description of the sample process of the LFS, see Statistics Sweden (2011).

2.2.1 The regular sample

The regular sample includes around 21,500 persons aged 15-74 every month. The sampling frame consists of Statistics Sweden's Total Population Register (TPR) for 30 September and consists of persons registered in Sweden.

For the regular sample, sample strata are created by different combinations of region (24) and sex (2) for a total of 48 strata, where region consists of county and the metropolitan municipalities of Stockholm, Gothenburg and Malmö.

In each stratum, a sorting is done by country of birth (born in Sweden/foreign born) and personal identity number. A systematic sample is then selected based on four different starting points to avoid any systematic presence in the frame.

The sampling fraction varies among counties; for example, smaller counties have a higher fraction than larger counties. The sampling fraction also varies between age groups where the age groups 15 and 65-74 years have a somewhat lower fraction than the group 16-64 years.

2.2.2 The supplementary sample

Each month the supplementary sample includes around 8,000 persons aged 16-66. The sampling frame is TPR for 30 September, which is supplemented with register data from Statistics Sweden's Register on income and taxation (IoT) and the Longitudinal integration database for health insurance and labour market studies (LISA).

For the supplementary sample, the sampling strata are created by using information from TPR, LISA and IoT. A total of 70 strata are created for those born in Sweden by combining age (3), region (7), information from LISA and IoT (2) and sex (2). A total of 35 strata are created for foreign born persons by combining age (3), region (7) and information from LISA and IoT (2). This means that 105 different strata are formed in total. Counties are divided into seven regions, where each region consists of one or more counties.

Within each stratum, individuals are sorted by personal identity number. Then the sample is selected from four different starting points to avoid any systematic presence in the frame.

A sample is selected for the age group 25-66 so that 80 percent of the total sample will capture persons with a weaker attachment to the labour market according to information from LISA and IoT.

2.3 Data collection in the LFS

Information for the LFS is collected through telephone interviews. The number of interviewers who conduct LFS interviews is about 240 people per month. Prior to each survey month, newly added sample persons are matched with phone numbers, so-called phone number matching. Telephone numbers for about 85 percent of the sample persons are obtained in this way. For persons who do not receive phone numbers in this matching step, Statistics Sweden performs a so-called basic tracing, whereby about another 5-7 percent of the sample persons receive phone numbers.

Around two weeks in advance, sample individuals are informed by letter that they have been selected to participate in the LFS and about the upcoming phone interview. A contact letter is also sent to sample persons who are missing a phone number despite phone number matching, in which the sample person is asked to notify Statistics Sweden of a working phone number and a suitable time for contact.

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 following interviews, only changes for certain variables such as labour force status, occupation and workplace are registered. However, information about the work situation during the reference week is registered each time, regardless of previous answers.

In some cases, for example during illness or with language difficulties, an indirect interview is conducted, which means that another person answers on behalf of the selected person. Interviews concerning a certain reference week begin the day after the end of the week. Most of the interviews are conducted within the course of 15 days after the reference week.

For more information on the measurement instrument and how it is used, as well as the content of the information letter and contact letter, see Statistics Sweden (2016a).

2.4 The estimation process of the LFS

The estimation in the LFS builds on a regression estimator with auxiliary information from Statistics Sweden's registers TPR and the Employment Register as well as information from the Swedish Public Employment Service (Af).

For a more detailed description of the estimation process of the LFS, see Statistics Sweden (2011).

2.4.1 General regression estimator (GREG)

Regression estimation is an estimation process that uses auxiliary information in the estimation phase. The idea of using auxiliary information builds on the auxiliary variables co-varying with the survey variables and/or response probability. The use of auxiliary information is intended to reduce sampling and nonresponse error. Regression estimation means that for the sample person k an observation is made of $(y_k , \boldsymbol{x}_k)$ where y_k is a measured value from the survey while

x_k is a vector of auxiliary information. The method also requires that the population total for the x-vector is known.

For a more detailed description of regression estimations, see Särndal, Swensson and Wretman (1992).

2.4.2 Auxiliary information

Auxiliary information in the LFS consists of register variables, or variables derived from register variables, that co-vary with the survey variable, response probability or identify important study domains.

By using auxiliary information in the estimation, consistency is created between estimates in the LFS and the known register totals used as auxiliary information.

2.4.2.1 Total Population Register

At the time of estimation, the LFS uses population information from TPR pertaining to the previous month.

From TPR, information is used on sex (2) combined with age (13) in 2*13=26 groups where age is divided into 15 years, 16-19 years, 20-24 years, 25-29 years, …, 70-74 years. The variable containing this information is called Aux_ald.

By using information about county and municipality to divide the population into 26 groups, the variable Aux_lan is created.

The population is also divided into four groups based on country of birth: born in Sweden, born elsewhere in the Nordic region, born elsewhere in Europe and born elsewhere in the world. This information forms the variable Aux_fodland.

2.4.2.2 The Employment Register

In the estimation, the LFS uses information from the Employment Register which is the basis for Statistics Sweden's register-based labour market statistics (RAMS). This information is in the best case 13 months old and in the worst case 24 months old.

To create the variable Aux_sni, information from RAMS on industrial classification is used for those classed as gainfully employed. Division takes place into eight groups where seven groups consist of gainfully employed persons divided by industrial classification and one group consists of those not classed as gainfully employed and/or where information on industrial classification is missing, see Appendix 1.

2.4.2.3 The Swedish Public Employment Service

Information from the Swedish Public Employment Service's (Af) register of job seekers refers to the same month to which the LFS refers at the time of estimation. Based on information from Af, the variable Aux_ams is created where the population is divided into two groups, openly unemployed in Af or not.

3 About nonresponse and its possible consequences

3.1 What is nonresponse?

Basically, nonresponse can be said to arise if it has not been possible to collect *all variable information* planned for collection from *all objects* subject to data collection. In the presentation below, nonresponse is assumed to arise as a consequence of an existing, but unknown response process. Assumptions about this response process often form the basis of the choice of handling the occurrence of nonresponse in the estimation through the chosen estimation process.

When nonresponse and its consequences to the quality of the statistics produced are discussed, it is not uncommon that partial nonresponse and object nonresponse are handled separately. Partial nonresponse occurs within objects when an object contributes some, but not all of the variable information planned for collection from the object in question, while object nonresponse arises if no variable information at all is collected from an object from which data was planned for collection.

3.2 Possible consequences of nonresponse

The collective effect of nonresponse on the quality of the statistics is sometimes called nonresponse error. In practical terms, it is often more productive to discuss the impact of the nonresponse on the statistics produced in terms of systematic and random errors. Assume, for example, that the unknown response process is such that responding objects systematically differ, with regard to an important survey variable, from nonresponding objects. If adjustments cannot be made for such systematic presence through the use of estimation processes, the systematic presence will also affect the statistical values produced. The statistics are then said to be produced with an estimator that is biased. In addition to potential bias, nonresponse usually means that the estimator used is affected by uncertainty of a random nature. Such uncertainty is typically described in terms of variances and variance contributions. Even if it can be shown that this does not apply in general, it is reasonable to assume that an estimator used under nonresponse demonstrates greater variance than an equivalent estimator would have demonstrated if there was no nonresponse.

Discussing nonresponse and its possible consequences to the quality of statistics in more detail without the help of mathematical notation is difficult. Therefore, some notation is introduced below with the intention of facilitating the continued presentation. The notation is chosen to facilitate the description of nonresponse and its possible consequences when statistics are to be produced based on a sample survey. For the sake of simplicity, only the situation when *one* register variable is used to study *one* survey variable is described.

Let U stand for the population that is of interest and let y stand for the survey variable of interest. Furthermore, let

$$\theta_y = \sum_{k \in U} y_k$$

Where y_k stands for the value of the survey variable y for the population element $k, = 1, \dots, N$. In the presentation below, it is assumed that y_k is a fixed, but numerically unknown value. If e.g. U stands for Sweden's population aged 15-74 and y is an indicator variable that for $k = 1, \dots, N$ is defined as

$$y_k = \begin{cases} 1 & if\ element\ k\ is\ unemployed \\ 0 & othwerweise \end{cases}$$

then θ_y stands for the number of unemployed persons aged 15-74 in Sweden's population.

To estimate θ_y a probability sample s ($s = sample\ set$) is selected of objects for which the goal is to collect information on the variable y. However, after completed data collection, the variable information has only been collected for the objects in the sub-set $r \subset s$ ($r = response\ set$). Let

- $\hat{\theta}_{yr}$ stand for the estimator for θ_y that is actually used, i.e. that is based on the data that has actually been collected for the variable y,
- $\hat{\theta}_{ys}$ stand for the estimator for which a corresponding estimation process would have resulted in if no nonresponse had existed ($s = sample\ set$).

Furthermore, let

- $E(\hat{\theta}_{ys})$ stand for the expected value of $\hat{\theta}_{ys}$ for the sample design used
- $E(\hat{\theta}_{yr})$ stand for the expected value of $\hat{\theta}_{yr}$ simultaneously for the sample design used and the unknown, but nonetheless existing, response process that exists and results in both responses and nonresponse arising.

and let $B(\hat{\theta}_{yr}) = E(\hat{\theta}_{yr}) - E(\hat{\theta}_{ys})$. Given that no other non-sampling error exists, $B(\hat{\theta}_{yr})$ numerically illustrates how much $\hat{\theta}_{yr}$ is expected to be affected by systematic nonresponse error. If the estimator $\hat{\theta}_{yr}$ is not affected by systematic nonresponse error, it holds that $B(\hat{\theta}_{yr}) = 0$. $\hat{\theta}_{yr}$ is said to be biased as a result of nonresponse if $B(\hat{\theta}_{yr}) \neq 0$. In this case, $B(\hat{\theta}_{yr})$ gives the size of the nonresponse bias that the estimator is affected by. The relative nonresponse bias, $RB(\hat{\theta}_{yr}) = B(\hat{\theta}_{yr})/E(\hat{\theta}_{ys})$ indicates the size of the bias in relation to the size of the expected value of $\hat{\theta}_{ys}$ for the sample design used.

As mentioned above, nonresponse can also contribute to error of a random nature. Let

- $V(\hat{\theta}_{ys})$ stand for the variance of $\hat{\theta}_{ys}$ for the sample design used
- $V(\hat{\theta}_{yr})$ stand for the variance of $\hat{\theta}_{yr}$ simultaneously for the sample design used and the unknown, but nonetheless existing, response process that exists and results in both responses and nonresponse arising.

Even if it can be shown that $V(\hat{\theta}_{ys}) < V(\hat{\theta}_{yr})$ does not apply generally, it is reasonable to assume that this relationship almost always exists in practice.

A collective conclusion from the above is that the occurrence of nonresponse can (i) introduce bias in the point estimators used and (ii) introduce extra variation in the point estimators used. This is worrying, at least insofar as the occurrence of nonresponse affects the possibilities of valid statistical inference regarding the quantities of interest.

Statistical theory provides support for the estimation of $V(\hat{\theta}_{ys})$ when no nonresponse exists, while estimation of $V(\hat{\theta}_{yr})$ normally presupposes some form of

assumptions regarding the unknown response process. In purely practical terms, one often attempts to derive $\hat{V}(\hat{\theta}_{yr})$, an estimator for $V(\hat{\theta}_{yr})$, in the hope that

$$\frac{\hat{\theta}_{yr} - \theta_y}{\sqrt{\hat{V}(\hat{\theta}_{yr})}} \dot{\sim} Z$$

where Z stands for a variable with standard normal distribution. This is because this condition makes it possible to construct the confidence interval for θ_y with actual coverage ratio close to the nominally stated. In practice, $\hat{V}(\hat{\theta}_{yr})$ is normally derived from the assumptions that are deemed to be realistic, but they are difficult to test.

3.3 Methods to study the effects of nonresponse

Nonresponse bias is defined at an estimator level. This leads to an approach where, for each quantity to be estimated, one strives to find an estimator that is expected to be affected by acceptably small nonresponse bias. In practice, however, such an approach is used relatively rarely. Production of official statistics normally concerns the production of large amounts of statistical values, and it is not uncommon that the same estimation process is used consistently for all survey variables. This means that nonresponse bias can be of varying size, and of varying practical relevance, for various estimators in the same survey. In addition, confidence intervals are often constructed under a normal distribution assumption with use of variance estimators that are based on assumptions that do not allow themselves to be tested.

There are mainly two available approaches to study what consequences the occurrence of nonresponse has in terms of bias and variance; (i) nonresponse follow-up according to the Hansen-Hurwitz method and (ii) a study based on available data relevant to the factual issues.

Nonresponse follow-up according to the Hansen-Hurwitz method is based on drawing a sub-sample of objects from the objects for which complete variable information is missing. The sub-sample shall be selected as a probability sample. Necessary resources are then allocated to make it possible to collect the missing variable information for the objects in the obtained sub-sample. Assuming that one succeeds in collecting the intended variable information for all objects in the sub-sample, this method has a number of very attractive characteristics in statistical terms. Given that no measurement error exists, the method normally enables:

- construction of valid confidence intervals for θ_y , for the survey variables that are of interest
- estimation of the size of nonresponse bias, $B(\hat{\theta}_{yr})$, for the estimators and survey variables studied

The Hansen-Hurwitz method was long considered the gold standard, but today it is difficult to argue for a use of the method. In order for the method to work well, the objective must be that one *shall* gather all the variable information not available for the objects included in the sub-sample, which means that this kind of study risks becoming very costly. In addition, there is the fact that the objective of full responses, regardless of approach and access to resources, in all likelihood will not be able to be achieved. In practice, one risks consuming extensive resources without achieving the statistical advantages that are the strength of the method.

A study based on available data presupposes that one has access to data relevant to the factual issues. For Statistics Sweden, it is reasonable to primarily consider studies based on register data. Assume that the register variable z has been identified as relevant for studying the survey variable y and that the variable value, z_k, can be obtained for all objects included in the sample set. Let

- $\hat{\theta}_{zr}$ stand for the estimator obtained if one for the variable z uses the regular estimation process under nonresponse
- $\hat{\theta}_{zs}$ stand for the estimator for the variable z which a corresponding estimation process would have resulted in if no nonresponse had existed

and let

- $\hat{V}(\hat{\theta}_{zr})$ stand for the estimator obtained if one for the variable z uses the regular variance estimation process under nonresponse
- $\hat{V}(\hat{\theta}_{zs})$ stand for the estimator for the variable z which a corresponding variance estimation process would have resulted in if no nonresponse had existed

It is thereby possible to study how the estimators $\hat{\theta}_{zr}$ and $\hat{\theta}_{zs}$ relate to one another. One can also illustrate the extent to which inference based on the estimator pair $\hat{\theta}_{zr}$ and $\hat{V}(\hat{\theta}_{zr})$ leads to other conclusions than inference based on the estimator pair $\hat{\theta}_{zs}$ and $\hat{V}(\hat{\theta}_{zs})$. Together with knowledge of the relationship between $\hat{\theta}_{zr}$ and $\hat{\theta}_{yr}$, information of this kind can be used to illustrate the extent to which $\hat{\theta}_{yr}$, in the capacity of estimator for θ_y, can be expected to be affected by nonresponse bias.

A study based on register data has the following advantages:

- Variable information that can be used to produce point and variance estimates can be obtained at a relatively low cost.
- If the variable information allows, the study can be repeated for several points in time, which enables studies of nonresponse error over time.
- By basing the study on the estimators $\hat{\theta}_{zr}$ and $\hat{\theta}_{zs}$, associated variance estimators $\hat{V}(\hat{\theta}_{zr})$ and $\hat{V}(\hat{\theta}_{zs})$, $\hat{B}(\hat{\theta}_{zr}) = \hat{\theta}_{zr} - \hat{\theta}_{zs}$, and $\widehat{RB}(\hat{\theta}_{zr}) = (\hat{\theta}_{zr} - \hat{\theta}_{zs})/\hat{\theta}_{zs}$, it is ensured that the results studied are primarily effects of nonresponse and not other non-sampling error.

In practice, mainly the last bullet point causes some problems. In connection with the data collection, some objects are classified as overcoverage objects. These objects are principally included in the response set, and thereby affect the final definition of the estimator $\hat{\theta}_{zr}$. To be able to calculate estimates based on $\hat{\theta}_{zs}$, one must therefore make some form of assumption regarding the occurrence of overcoverage objects among the objects that in connection with the data collection have been categorized as nonresponse, and decide how they shall be handled in the definition of $\hat{\theta}_{zs}$. Therefore, $\hat{B}(\hat{\theta}_{zr}) = \hat{\theta}_{zr} - \hat{\theta}_{zs}$ will not only shed light on the occurrence of nonresponse bias, which naturally risks impeding the interpretation of the results obtained.

The largest problem of a register-based study is, however, that one is forced to study the nonresponse error with the help of variables other than the survey variables actually used. Even if the register variable z is chosen because it both logically and empirically is found to be suitable to study the survey variable y, one can always question if the result concerning bias for the register variable, $B(\hat{\theta}_{zr})$, can really be presumed to apply also to bias for the survey variable, $B(\hat{\theta}_{yr})$.

4 Consequences of nonresponse to the LFS

4.1 Need for a study and selection of method

As shown by the contents of Section 2.4, the statistical values of the LFS are produced using a general regression estimator. This estimator uses auxiliary information, obtained from administrative sources, which has been chosen in part with the goal of reducing sampling and nonresponse error in the estimation of important parameters. Whether or not the latter objective is actually achieved is, however, difficult to say for certain since, for example, no major study has been done of the occurrence of nonresponse bias in the LFS for the estimation process used today.

The following section presents results that in various ways shed light on the extent to which nonresponse can be expected to lead to greater bias in the statistical values produced. A large part of the results builds on calculations based on register data, and the method described in the previous section has been used. This means that the analysis is register based, despite the limitations such an analysis is affected by, over an analysis based on the Hansen-Hurwitz method. There are two main reasons for this choice. First, Statistics Sweden's access to register information has made it possible to identify register variables adequately relevant to the factual issue. Second, it is not deemed to be possible to conduct an analysis according to the Hansen-Hurwitz method with an acceptable quality at a justifiable cost.

In the analysis, register variables have been used as an approximation for important target variable in the LFS; see Section 2.1.1. Of these central target variables, employed, unemployed and not in the labour force have been analysed. In addition to this, variables such as employees, students, three income groups and young people who neither work nor study have been analysed. The correlation between the variables of the LFS and the analysed register variables is not complete, a clear difference is that the variables of the LFS originate from responses that the sample person has provided at the time of the interview and the register variables originate from register information. Another difference is the reference period, which for the majority of the variables of the LFS is one week, while the register variables usually pertain to a longer period of time. The analysed register variables can, however, be considered to provide an indication of the quality of the estimates of the LFS. How good this indication is depends on the co-variation that exists between the variables of the LFS and the analysed register variables.

In the majority of the analyses, nonresponse bias is studied based on the study domains of sex, age, born in Sweden/foreign born and level of education[9].

[9] In this report, information on level of education is used that differs somewhat from what is used in the production of statistics in the LFS. In the LFS, the information on level of education has better quality for young people aged 15-24, since they are asked extra questions at transitions between compulsory and upper secondary school as well as between upper secondary school and university to obtain more current information about the education than is in register data.

Section **Fel! Hittar inte referenskälla.** empirically sheds light on the nonresponse b ias using point and measure of uncertainty estimates based on both the whole sample set and the response set. This is done to make it possible for the reader to decide the extent to which the occurrence of any nonresponse bias is also of practical relevance. Whether the occurrence of nonresponse bias is a problem ultimately depends on how the statistics are actually used.

Lastly, Section 4.3 sheds light on how the occurrence of nonresponse and nonresponse bias can be expected to affect statistics when comparisons are to be done over time.

4.2 Estimates of level

Since the LFS are affected by nonresponse, there is a risk of nonresponse bias. To reduce this risk, auxiliary information, described in Section 2.4.2, is used in the estimation. With one exception, age combined with sex, the composition of the auxiliary information is primarily chosen to reduce the uncertainty in the most important estimates of the LFS at a population level. Basically, one can say that when statistical values are produced on a study domain level in the LFS, the nonresponse-adjusted effect of the auxiliary information is a consequence of how the response set and sample set differ in terms of the distribution according to the used auxiliary variables, both on a population level and on a study domain level.

Below, results are presented that in various ways illustrate how nonresponse affects the uncertainty in the statistical values concerning persons aged 16-74 in the LFS. The reason that this age group and not the age group that comprises the target population of the LFS, 15-74 years, has been studied is that 15 year-olds are not included in most of the studied registers. The fact that 15 year-olds are excluded from the analysis is not deemed to have any appreciable effect on the conclusions drawn. The results are essentially based on calculations based on the method presented in the previous section where two estimates of the same register variable are compared. One estimate is based on those who actually responded in the current reference month while the other is based on the entire sample for the same reference period.

The presented tables show estimates for various quantities concerning the month of December for 2015. December 2015 has been chosen since the majority of the registers that are relevant to be included in the analysis pertain to December and the year 2015 is for most registers the latest version that is available. Tables consist of estimates of variables derived from registers. These estimates, with corresponding measure of uncertainty, are calculated based on the estimation process of the LFS and are based on the sample set and response set, respectively. The tables also present the estimated bias[10] and its measure of uncertainty.

To relate the size of the bias to the size of the estimate, the relative bias is presented, expressed as a percentage, with the corresponding measure of uncertainty. If the estimated bias and relative bias are significantly different from

[10] The bias is the difference between the variable estimate based on the response set and the corresponding estimate based on the sample set, see section 3.3.

zero[11], at a significance level of 5 percent, this is marked with an asterisk *(*)* at the right side of the respective estimate[12]. Since the measure of uncertainty is estimated, it is possible to obtain a negative estimate. If this is the case, no measure of uncertainty is presented and no significance test can be performed. The latter is indicated by a minus sign *(-)* being given instead of an asterisk.

4.2.1 The derived register variable SAEAR

In an initial stage to analyse the nonresponse bias, the variable SAEAR (**S**ysselsatt, **A**rbetslös, **E**j i **A**rbetskraften utifrån **R**egistervariabler - Employed, Unemployed, Not in the Labour force based on Register variables) is derived from register variables with the aim to be similar to important target variables in the LFS.

The variable can take on three values:

1. Employed according to RAMS
2. Unemployed according to Af
3. Not in the labour force (complement to 1 and 2)

The variable SAEAR is created by using register information from RAMS and Af regarding the current reference month. Based on this register information, the population is divided into three groups: employed, unemployed and not in the labour force. Individuals are categorised as employed if they are employed according to RAMS. Individuals that are not employed are categorised as unemployed if they are registered as unemployed (openly unemployed + job-seekers in programmes with activity grants) according to Af. Individuals that are neither categorised as employed or unemployed are categorised as not in the labour force.

Since register information both from RAMS and Af is used as auxiliary information, the risk of nonresponse bias should be small when SAEAR is studied. It is the same actuality in the register information from Af as in the derivation of SAEAR and in the auxiliary information. However, the actuality in RAMS is not as good in the auxiliary information as in SAEAR. Accordingly, the risk of nonresponse bias, when SAEAR is studied, should be lower for the unemployed compared with the employed persons and those not in the labour force.

The nonresponse rate for the age group 15-74 has increased from 25.4 percent in 2011 to 40.1 percent in 2015 (43.0 percent in 2016). Since the nonresponse rate has increased in the years studied, an increase over time of the relative bias would indicate that the nonresponse bias increases when the nonresponse rate increases. To illustrate if this is the case with regard to SAEAR, the estimated relative bias over time is presented for the years 2011-2015 for employed persons, unemployed persons and those not in the labour force.

[11] The estimated bias and estimated relative bias are significantly different from zero if the absolute amount of the estimated value is greater than the corresponding measure of uncertainty.

[12] In some cases, the bias estimate with corresponding measure of uncertainty indicates that no bias exists, at the same time that the test process indicates that the bias is significantly different from zero. This is due to the significance test being based on estimates not rounded off while the presented estimates are rounded off.

This is followed by subsections where estimates for employed persons, unemployed persons and those not in the labour force regarding the month of December 2015 are presented according to the selected study domains.

4.2.1.1 Relative bias over time

Diagram 4.1 shows that the estimated relative nonresponse bias for employed persons according to SAEAR does not appear to increase when nonresponse increases, but rather is around 1.0 percent for the years studied. During the period studied, the relative nonresponse bias has been between 0.7 and 1.3 percent. The interpretation of the latter value in the diagram is that for December 2015, it was estimated that the number of employed persons based on the response set was 1.1 percent larger than the estimated number of employed persons based on the sample set.

Diagram 4.1. Relative bias for employed persons according to SAEAR. 16-74 years. December 2011 – December 2015. Percent.

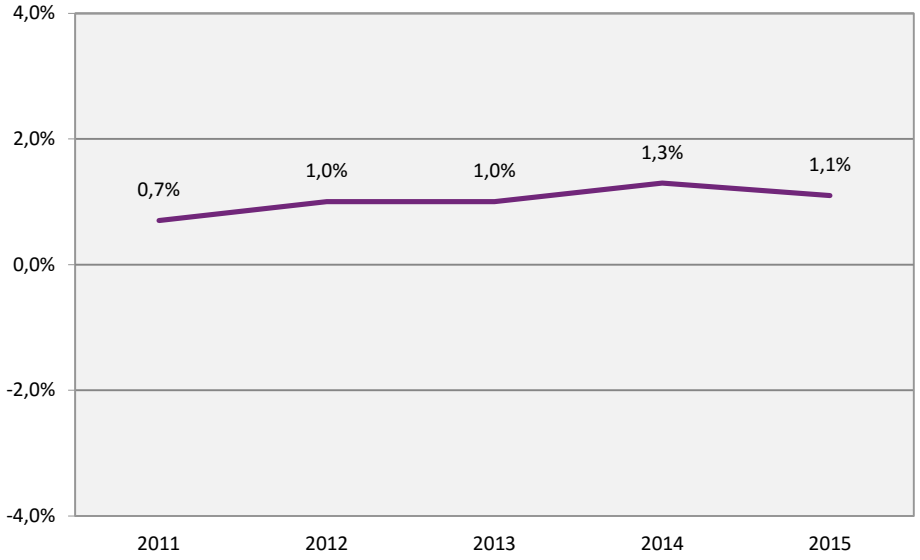


Diagram 4.2 shows that the estimated nonresponse bias for unemployed persons according to SAEAR seems to vary during the period studied. In December 2015, the number of unemployed persons was overestimated by around 2.9 percent as the number of unemployed persons in the response set was larger than the number of unemployed persons in the sample set. As shown in Table 4.3 below, this relative bias is, however, not significantly different from zero.

Diagram 4.2. Relative bias for unemployed persons according to SAEAR 16-74 years. December 2011 – December 2015. Percent.

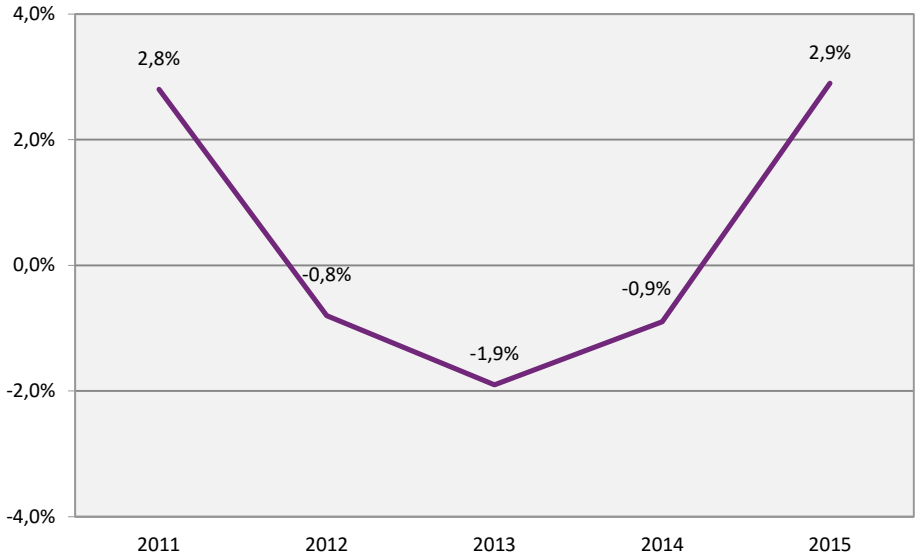
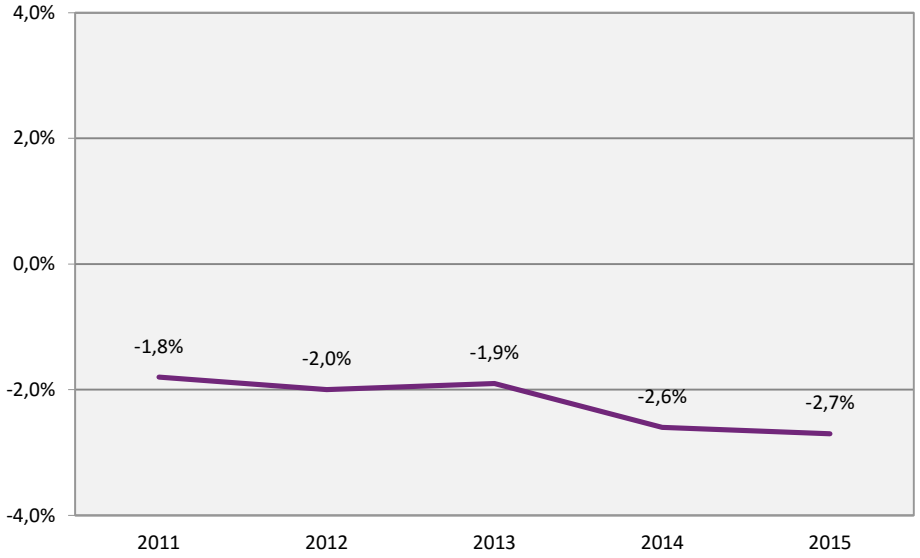


Diagram 4.3 shows that the estimated nonresponse bias for those not in the labour force according to SAEAR increased somewhat, in absolute terms, when the nonresponse increased. During the period studied, the relative nonresponse bias has been between -2.7 and -1.8 percent. This indicates that for December 2015, the number of persons not in the labour force was underestimated by around 2.7 percent and that the estimated number not in the labour force in the response set is smaller than the estimated number in the sample set.

Diagram 4.3. Relative bias for those not in the labour force according to SAEAR. 16-74 years. December 2011 – December 2015. Percent.



4.2.1.2 Employed

Table 4.1 shows the number estimates for employed persons according to SAEAR aged 16-74 for December 2015. For the majority of the study domains, a higher estimate of the number of employed persons is obtained when the estimate is based on the response set than when the estimate is based on the sample set.

No nonresponse adjustment is done on level of education, which is why both the bias and the relative bias are significantly higher for these study domains. For the groups with primary and lower secondary education and upper secondary education, a higher estimate of the number of employed persons is obtained when it is based on the sample set, while the reverse relationship applies to post secondary education. For the various study domains for education, the relative bias is between -14.7 (±2.7) percent for primary and lower secondary education and 15.4 (±1.5) percent for those with post secondary education. For the other study domains, the relative bias is between 0.3 (±0.8) percent for women aged 16-74 and 4.2 (±2.4) percent for foreign born persons.

Appendix 2 presents the number estimates regarding employed persons according to SAEAR by age groups. For the age groups 16-24 years and 65-74 years, the estimate of employed persons is lower for the response set than the sample set, while the relationship is the opposite for the age groups 25-34 years, 35-44 years and 45-55 years.

Table 4.1. Employed persons according to SAEAR. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	4,726,000 (±31,000)	4,673,000 (±23,000)	53,000 (±21,000)	*	1.1 (±0.4)	*
Men 16-74	2,472,000 (±27,000)	2,425,000 (±21,000)	47,000 (±17,000)	*	1.9 (±0.7)	*
Women 16-74	2,254,000 (±27,000)	2,248,000 (±21,000)	6,000 (±18,000)		0.3 (±0.8)	
Total 20-64	4,458,000 (±30,000)	4,383,000 (±23,000)	75,000 (±20,000)	*	1.7 (±0.4)	*
Men 20-64	2,311,000 (±24,000)	2,255,000 (±19,000)	56,000 (±16,000)	*	2.5 (±0.7)	*
Women 20-64	2,147,000 (±25,000)	2,128,000 (±19,000)	19,000 (±17,000)	*	0.9 (±0.8)	*
Born in Sweden 16-74	3,929,000 (±33,000)	3,908,000 (±25,000)	21,000 (±21,000)		0.5 (±0.5)	
Foreign born 16-74	797,000 (±26,000)	765,000 (±19,000)	32,000 (±18,000)	*	4.2 (±2.4)	*
Primary and lower secondary edu. 16-74	444,000 (±26,000)	521,000 (±21,000)	-77,000 (±14,000)	*	-14.7 (±2.7)	*
Upper secondary edu. 16-74	2,068,000 (±44,000)	2,226,000 (±34,000)	-158,000 (±27,000)	*	-7.1 (±1.2)	*
Post secondary edu. 16-74	2,191,000 (±43,000)	1,899,000 (±32,000)	292,000 (±28,000)	*	15.4 (±1.5)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

Table 4.2 presents the relative estimates, which show the same pattern as those for number. The employment rate is estimated to be higher when the estimate is based on the response set than when it is based on the sample set for all study domains except two. These are primary and lower secondary education and upper secondary education, where the opposite relationship exists.

For relative estimates, the bias for the education groups is between -1.6 (±1.2) percentage points for primary and lower secondary education and 0.7 (±0.5) percentage points for post secondary education. For the other study domains, the bias is between 0.2 (±0.5) percentage points for women aged 16-74 and 2.2 (±1.3) percentage points for foreign born persons. So in contrast to the observed situation

for the number estimates, the bias estimates for the relative estimates are on the same scale for all study domains.

Appendix 2 presents the relative estimates regarding employed persons according to SAEAR by age groups. The pattern is the same as for the number estimates. For the age groups 16-24 years and 65-74 years, the estimate of the employment rate is lower for the response set than the sample set, while it is higher for the age groups 25-34 years, 35-44 years and 45-55 years.

Table 4.2. Employment rate according to SAEAR. 16-74 years. December 2015. Percent.

Breakdown	Estimate response set	Estimate sample set	Bias	
Total 16-74	65.8 (±0.4)	65.1 (±0.3)	0.7 (±0.3)	*
Men 16-74	67.9 (±0.8)	66.6 (±0.6)	1.3 (±0.5)	*
Women 16-74	63.6 (±0.8)	63.5 (±0.6)	0.2 (±0.5)	
Total 20-64	78.7 (±0.5)	77.4 (±0.4)	1.3 (±0.3)	*
Men 20-64	80.2 (±0.8)	78.3 (±0.6)	1.9 (±0.6)	*
Women 20-64	77.2 (±0.9)	76.5 (±0.7)	0.7 (±0.6)	*
Born in Sweden 16-74	68.2 (±0.6)	67.9 (±0.4)	0.4 (±0.4)	*
Foreign born 16-74	56.0 (±1.8)	53.8 (±1.3)	2.2 (±1.3)	*
Primary and lower secondary edu. 16-74	38.1 (±1.8)	39.7 (±1.3)	-1.6 (±1.2)	*
Upper secondary edu. 16-74	69.1 (±1.0)	70.1 (±0.8)	-0.9 (±0.7)	*
Post secondary edu. 16-74	76.9 (±1.0)	76.2 (±0.9)	0.7 (±0.5)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

4.2.1.3 Unemployed

Table 4.3 shows the number estimates for unemployed persons according to SAEAR aged 16-74 for December 2015. In terms of the population in total and divided by sex, no differences are obtained that are significantly different from zero when the estimate based on the response set is compared with the estimate based on the sample set. However, it is obtained for the study domains of both born in Sweden and foreign born. For those born in Sweden, 9,000 (±9,000) fewer unemployed persons are estimated in the response set, which corresponds to a relative bias of -6.9 (±6.6) percent. For foreign born persons, 17,000 (±12,000) more unemployed persons are estimated in the response set, which corresponds to a relative bias of 12.7 (±8.8) percent. The division based on the level of education only results in bias significantly different from zero for the group of post secondary education, where the number estimate is 11,000 (±9,000) higher in the response set and the relative bias is 17.8 (±13.6) percent.

Table 4.3. Unemployed persons according to SAEAR. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	276,000 (±18,000)	268,000 (±13,000)	8,000 (±13,000)		2.9 (±4.9)	
Men 16-74	156,000 (±15,000)	149,000 (±10,000)	7,000 (±11,000)		4.8 (±7.4)	
Women 16-74	121,000 (±14,000)	120,000 (±9,000)	1,000 (±10,000)		0.6 (±8.5)	
Total 20-64	272,000 (±18,000)	262,000 (±12,000)	10,000 (±13,000)		3.8 (±5.0)	
Men 20-64	153,000 (±15,000)	145,000 (±10,000)	8,000 (±11,000)		5.6 (±7.6)	
Women 20-64	119,000 (±14,000)	117,000 (±9,000)	2,000 (±10,000)		1.5 (±8.7)	
Born in Sweden 16-74	125,000 (±13,000)	134,000 (±9,000)	-9,000 (±9,000)	*	-6.9 (±6.6)	*
Foreign born 16-74	151,000 (±15,000)	134,000 (±10,000)	17,000 (±12,000)	*	12.7 (±8.8)	*
Primary and lower secondary edu. 16-74	82,000 (±12,000)	85,000 (±8,000)	-3,000 (±9,000)		-3.1 (±10.4)	
Upper secondary edu. 16-74	115,000 (±13,000)	116,000 (±9,000)	-2,000 (±9,000)		-1.3 (±8.1)	
Post secondary edu. 16-74	76,000 (±11,000)	65,000 (±7,000)	11,000 (±9,000)	*	17.8 (±13.6)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

Table 4.4 shows the relative estimates regarding unemployed persons according to SAEAR. The only significant bias that is obtained is for those born in Sweden where it amounts to -0.2 (±0.2) percentage points.

Table 4.4. Unemployment according to SAEAR. 16-74 years. December 2015. Percent.

Breakdown	Estimate response set	Estimate sample set	Bias	
Total 16-74	5.5 (±0.4)	5.4 (±0.2)	0.1 (±0.3)	
Men 16-74	5.9 (±0.6)	5.8 (±0.4)	0.2 (±0.4)	
Women 16-74	5.1 (±0.6)	5.1 (±0.4)	0.0 (±0.4)	
Total 20-64	5.7 (±0.4)	5.6 (±0.3)	0.1 (±0.3)	
Men 20-64	6.2 (±0.6)	6.0 (±0.4)	0.2 (±0.4)	
Women 20-64	5.2 (±0.6)	5.2 (±0.4)	0.0 (±0.4)	
Born in Sweden 16-74	3.1 (±0.3)	3.3 (±0.2)	-0.2 (±0.2)	*
Foreign born 16-74	16.0 (±1.6)	14.9 (±1.1)	1.0 (±1.1)	
Primary and lower secondary edu. 16-74	15.6 (±2.1)	14.0 (±1.3)	1.6 (±1.7)	
Upper secondary edu. 16-74	5.3 (±0.6)	5.0 (±0.4)	0.3 (±0.4)	
Post secondary edu. 16-74	3.4 (±0.5)	3.3 (±0.4)	0.1 (±0.3)	

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

4.2.1.4 Not in the labour force and the labour force participation rate

In Table 4.5, the number estimates regarding those not in the labour force according to SAEAR for December 2015 are shown. The bias estimates are significant for a majority of the study domains. Among the groups with significant bias estimates, the estimates of those not in the labour force are lower for the response set than for the sample set, except for two. The two exceptions are foreign born persons and persons with post secondary education where the estimates are instead higher for the response set. The relative bias is the highest for the group of foreign born persons where it amounts to 13.6 (±10.3) percent, followed by men aged 20-64 where it is -13.4 (±2.9) percent and people with post secondary education where it is 10.1 (±4.1) percent.

Appendix 2 presents the number estimates regarding those not in the labour force according to SAEAR by age groups. For the age groups 16-24 years and 65-74 years, the estimate of those not in the labour force is higher for the response set than the sample set, while the relationship is the opposite for the age groups 25-34 years, 35-44 years and 45-55 years.

Table 4.5. Not in the labour force according to SAEAR. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	2,180,000 (±32,000)	2,241,000 (±24,000)	-61,000 (±21,000)	*	-2.7 (±0.9)	*
Men 16-74	1,012,000 (±26,000)	1,066,000 (±21,000)	-54,000 (±16,000)	*	-5.1 (±1.5)	*
Women 16-74	1,168,000 (±27,000)	1,175,000 (±20,000)	-7,000 (±17,000)		-0.6 (±1.5)	
Total 20-64	932,000 (±30,000)	1,017,000 (±23,000)	-85,000 (±20,000)	*	-8.4 (±1.9)	*
Men 20-64	416,000 (±22,000)	480,000 (±17,000)	-64,000 (±14,000)	*	-13.4 (±2.9)	*
Women 20-64	516,000 (±24,000)	537,000 (±18,000)	-21,000 (±17,000)	*	-3.9 (±3.1)	*
Born in Sweden 16-74	1,704,000 (±33,000)	1,717,000 (±25,000)	-13,000 (±21,000)		-0.8 (±1.2)	
Foreign born 16-74	104,000 (±12,000)	92,000 (±8,000)	12,000 (±9,000)	*	13.6 (±10.3)	*
Primary and lower secondary edu. 16-74	641,000 (±31,000)	706,000 (±26,000)	-66,000 (±18,000)	*	-9.3 (±2.6)	*
Upper secondary edu. 16-74	809,000 (±36,000)	835,000 (±29,000)	-26,000 (±21,000)	*	-3.1 (±2.5)	*
Post secondary edu. 16-74	581,000 (±33,000)	528,000 (±25,000)	53,000 (±21,000)	*	10.1 (±4.1)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

In Table 4.6, the relative estimates are shown regarding the labour force, also known as the labour force participation rate, according to SAEAR for December 2015. The relative estimates show a similar pattern as for the numbers. For two study domains, the labour force participation rate is estimated to be lower when the estimate is based on the response set than when it is based on the sample set; these study domains are primary and lower secondary education and upper secondary education. For the other study domains, the labour force participation rate is estimated to be higher for the response set than for the sample set. The highest bias estimates are obtained for the groups of foreign born persons and men aged 20-64. These estimates are at 3.4 (±1.2) and 2.2 (±0.5) percentage points.

Appendix 2 presents the estimates regarding the labour force participation rate according to SAEAR by age groups. The pattern is the same as for the number estimates. For the age groups 16-24 years and 65-74 years, the estimate of the labour force participation rate is lower for the response set than the sample set, while it is higher for the age groups 25-34 years, 35-44 years and 45-55 years.

Table 4.6. Labour force participation rate according to SAEAR. 16-74 years. December 2015. Percent.

Breakdown	Estimate response set	Estimate sample set	Bias	
Total 16-74	69.7 (±0.4)	68.8 (±0.3)	0.9 (±0.3)	*
Men 16-74	72.2 (±0.7)	70.7 (±0.6)	1.5 (±0.4)	*
Women 16-74	67.0 (±0.8)	66.8 (±0.6)	0.2 (±0.5)	
Total 20-64	83.5 (±0.5)	82.0 (±0.4)	1.5 (±0.3)	*
Men 20-64	85.5 (±0.8)	83.3 (±0.6)	2.2 (±0.5)	*
Women 20-64	81.5 (±0.9)	80.7 (±0.6)	0.7 (±0.6)	*
Born in Sweden 16-74	70.4 (±0.6)	70.2 (±0.4)	0.2 (±0.4)	
Foreign born 16-74	66.6 (±1.8)	63.2 (±1.3)	3.4 (±1.2)	*
Primary and lower secondary edu. 16-74	45.1 (±1.9)	46.2 (±1.4)	-1.1 (±1.3)	
Upper secondary edu. 16-74	73.0 (±1.0)	73.7 (±0.8)	-0.8 (±0.7)	*
Post secondary edu. 16-74	79.6 (±1.0)	78.8 (±0.9)	0.8 (±0.5)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

4.2.2 Employees

Activity statistics based on administrative sources (RAKS) is a compilation and further development of variables that are in RAMS and the LISA database, where LISA stands for Longitudinal integration database for health insurance and labour market studies. The main sources of data for RAKS are thereby the Employment Register in RAMS and the LISA database. The objective of RAKS is to describe a person's total income and attachment to the labour market with the full year as reference period. In contrast to RAMS, which measures people's employment status in the month of November, RAKS covers the whole year and all activities that register statistics can shed light on. For more information on RAKS, see Statistics Sweden (2015b).

In RAKS, there is information about the person's main attachment to the labour market. In the analysis, this information has been used to study how estimates regarding employees are affected by nonresponse. For more detailed information on labour market attachment, see Statistics Sweden (2007).

In Table 4.7, the number estimates are shown regarding employees according to RAKS for December 2015. For the groups primary and lower secondary education and upper secondary education, the estimated number of employees is lower in the response set than in the sample set. The relationship for other groups is the opposite; there, the estimated number of employees is larger in the response set than in the sample set. The relative bias is highest in the study domains for level of education where it is between -10.5 (±2.5) percent for primary and lower secondary education and 16.7 (±1.7) percent for post secondary education. In the other groups, it is between 0.7 (±0.9) for women aged 16-74 and 5.7 (±2.3) percent for foreign born persons.

Appendix 2 presents the number estimates regarding employed persons according to RAKS by age groups. For all age groups where a bias significantly different from zero is obtained, the estimate for the number of employees is higher when it is based on the response set than when it is based on the sample set. The relative bias for the various age groups is between 0.3 (±1.8) and 2.7 (±1.3) percent.

Table 4.7. Employees according to RAKS. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	4,711,000 (±45,000)	4,623,000 (±35,000)	88,000 (±29,000)	*	1.9 (±0.6)	*
Men 16-74	2,341,000 (±35,000)	2,270,000 (±27,000)	71,000 (±22,000)	*	3.1 (±1.0)	*
Women 16-74	2,371,000 (±32,000)	2,354,000 (±25,000)	17,000 (±21,000)		0.7 (±0.9)	
Total 20-64	4,197,000 (±40,000)	4,118,000 (±30,000)	80,000 (±26,000)	*	1.9 (±0.6)	*
Men 20-64	2,081,000 (±30,000)	2,020,000 (±23,000)	61,000 (±19,000)	*	3.0 (±0.9)	*
Women 20-64	2,116,000 (±28,000)	2,097,000 (±21,000)	19,000 (±19,000)	*	0.9 (±0.9)	*
Born in Sweden 16-74	3,845,000 (±42,000)	3,803,000 (±33,000)	41,000 (±25,000)	*	1.1 (±0.7)	*
Foreign born 16-74	867,000 (±27,000)	820,000 (±20,000)	46,000 (±19,000)	*	5.7 (±2.3)	*
Primary and lower secondary edu. 16-74	595,000 (±28,000)	665,000 (±22,000)	-70,000 (±16,000)	*	-10.5 (±2.5)	*
Upper secondary edu. 16-74	1,967,000 (±46,000)	2,107,000 (±35,000)	-140,000 (±29,000)	*	-6.6 (±1.4)	*
Post secondary edu. 16-74	2,062,000 (±45,000)	1,767,000 (±33,000)	295,000 (±30,000)	*	16.7 (±1.7)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

4.2.3 Students

Register information from the Register on participation in education (RPU) is used to study how the estimates regarding students are affected by nonresponse. RPU consists of information on study participation for the spring and autumn semester for the age group 16-74. The register builds on joint processing of already existing registers in Statistics Sweden, the Swedish National Agency for Higher Vocational Education, and the Swedish Board of Student Finance, as well as the Swedish Public Employment Service and are produced about a year after the end of the reference period. For more information on the Register on participation in education, see Statistics Sweden (2016b).

In this analysis, information about the highest prioritised education the person participated in during autumn 2015 was used to classify the person as a student or not.

In Table 4.8, the estimates regarding the number of students according to RPU for December 2015 are shown. For all study domains except the one for primary and lower secondary education, bias estimates are obtained that are significantly different from zero. For all of these groups, the estimated number of people studying according to RPU is higher when the estimate is based on the response set than when the estimate is based on the sample set. The relative bias amounts to between 2.3 (±4.1) percent for primary and lower secondary education and 23.1 (±5.9) percent for post secondary education.

Appendix 2 presents the number estimates regarding persons with markings from the autumn semester according to RPU by age groups. A bias that is significantly different from zero is obtained for the age groups 16-24 years, 25-34 years and 35-44 years. For the age group 16-24 years, the bias is 65,000 (±14,000), which corresponds to a relative bias of 10.8 (±2.4) percent. For the age group 25-34 years, the bias is 26,000 (±14,000), which corresponds to a relative bias of 11.4 (±6.3) percent. For the age group 35-44 years, the bias is 11,000 (±10,000), which corresponds to a bias of 10.5 (±9.0).

Table 4.8. Students according to the Register over the population's study participation. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	1,123,000 (±32,000)	1,019,000 (±23,000)	104,000 (±23,000)	*	10.2 (±2.2)	*
Men 16-74	503,000 (±21,000)	455,000 (±15,000)	48,000 (±15,000)	*	10.6 (±3.3)	*
Women 16-74	620,000 (±25,000)	564,000 (±17,000)	56,000 (±18,000)	*	9.9 (±3.1)	*
Total 20-64	770,000 (±31,000)	675,000 (±21,000)	95,000 (±22,000)	*	14.1 (±3.3)	*
Men 20-64	323,000 (±20,000)	277,000 (±14,000)	45,000 (±15,000)	*	16.4 (±5.3)	*
Women 20-64	448,000 (±24,000)	398,000 (±16,000)	50,000 (±17,000)	*	12.6 (±4.4)	*
Born in Sweden 16-74	807,000 (±27,000)	742,000 (±19,000)	65,000 (±19,000)	*	8.8 (±2.6)	*
Foreign born 16-74	316,000 (±21,000)	277,000 (±14,000)	39,000 (±16,000)	*	14.1 (±5.7)	*
Primary and lower secondary edu. 16-74	318,000 (±18,000)	311,000 (±13,000)	7,000 (±13,000)		2.3 (±4.1)	
Upper secondary edu. 16-74	275,000 (±21,000)	258,000 (±14,000)	16,000 (±15,000)	*	6.4 (±5.9)	*
Post secondary edu. 16-74	405,000 (±25,000)	329,000 (±17,000)	76,000 (±19,000)	*	23.1 (±5.9)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

4.2.4 Income

From the Register on income and taxation (IoT), information is used to analyse how estimates regarding different income groups are affected by nonresponse.

IoT is produced through collection and processing of data from administrative sources. The register contains information from the Swedish Tax Agency, the Swedish Social Insurance Agency, the Swedish Board of Student Finance, the Swedish National Government Employee Pensions Board, the Swedish Pensions Agency, the Swedish Armed Forces, the Swedish National Agency for Education and the National Board of Health and Welfare. In addition, the register is supplemented with information from TPR and is completed about 14 months after the end of the income year. For more information on IoT, see

http://www.scb.se/sv_/Vara-tjanster/Bestalla-mikrodata/Vilka-mikrodata-finns/Registret-over-inkomster-och-taxeringar-IoT/.

To analyse the nonresponse error by income, a breakdown is done by three income groups based on a summation of wage income and business income. The three income groups are created based on a division of the population into ten groups, deciles, where the first decile is the tenth of the population with the lowest income and the tenth decile is the tenth with the highest income. This division into deciles is done for men and women. Income group 1 consists of those where information on income is missing and those who belong to the first decile. Income group 2 consists of those belonging to deciles 2-5 and income group 3 consists of those belonging to the five highest deciles. The income groups are created according to Table 4.9 below.

Table 4.9. Division by income group.

	Women	Men
Income group 1	Information on income is missing or income is lower than SEK 60,000	Information on income is missing or income is lower than SEK 80,000
Income group 2	SEK 60,000 ≤ income < SEK 255,000	SEK 80,000 ≤ income < SEK 320,000
Income group 3	Income ≥ SEK 255,000	Income ≥ SEK 320,000

Table 4.10 presents the estimates regarding the number of people in income group 1 according to the Register on income and taxation for December 2015. For the group of post secondary education, the estimated number of people in income group 1 is higher when the estimate is based on the response set than when the estimate is based on the sample set. For the other study domains, the relationship is the opposite; the estimate is lower when it is based on the response set than when the estimate is based on the sample set. The largest relative bias in absolute figures is obtained for the study domains of men aged 20-64 and post secondary education, -8.2 (±2.5) and 11.1 (±3.8) percent, respectively.

Table 4.10. Income group 1 according to the Register on income and taxation. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	2,556,000 (±33,000)	2,611,000 (±25,000)	-55,000 (±22,000)	*	-2.1 (±0.8)	*
Men 16-74	1,238,000 (±27,000)	1,288,000 (±21,000)	-50,000 (±17,000)	*	-3.8 (±1.3)	*
Women 16-74	1,318,000 (±28,000)	1,323,000 (±21,000)	-5,000 (±18,000)		-0.4 (±1.4)	
Total 20-64	1,235,000 (±32,000)	1,310,000 (±24,000)	-75,000 (±21,000)	*	-5.7 (±1.6)	*
Men 20-64	589,000 (±25,000)	642,000 (±19,000)	-53,000 (±16,000)	*	-8.2 (±2.5)	*
Women 20-64	646,000 (±26,000)	668,000 (±19,000)	-22,000 (±18,000)	*	-3.3 (±2.7)	*
Born in Sweden 16-74	1,930,000 (±34,000)	1,952,000 (±26,000)	-22,000 (±21,000)	*	-1.1 (±1.1)	*
Foreign born 16-74	626,000 (±26,000)	659,000 (±19,000)	-33,000 (±18,000)	*	-5.0 (±2.8)	*
Primary and lower secondary edu. 16-74	775,000 (±34,000)	844,000 (±27,000)	-69,000 (±20,000)	*	-8.1 (±2.4)	*
Upper secondary edu. 16-74	947,000 (±38,000)	979,000 (±30,000)	-32,000 (±23,000)	*	-3.2 (±2.3)	*
Post secondary edu. 16-74	681,000 (±35,000)	613,000 (±26,000)	68,000 (±23,000)	*	11.1 (±3.8)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

In Appendix 2, the estimates regarding the number of people in income group 1 according to the Register on income and taxation by age groups are presented. For the age groups 16-24 years and 65-74 years, the estimated number of people in income group 1 is lower when the estimate is based on the response set than when the estimate is based on the sample set. For the age groups 25-34 years, 35-44 years and 45-54 years the relationship is the opposite; the estimated number of people in income group 1 is higher when the estimate is based on the response set than when the estimate is based on the sample set. The relative bias in the age groups amounts to between -17.7 (±4.6) and 5.8 (±2.1) percent.

Table 4.11 presents the estimates regarding the number of people in income group 2 according to the Register on income and taxation for December 2015. The pattern

is the same as for income group 1. For the group of post secondary education, the estimated number of people in income group 2 is higher when the estimate is based on the response set than when the estimate is based on the sample set. For the other study domains, the relationship is the opposite; the estimate is lower when it is based on the response set than when the estimate is based on the sample set. The relative bias amounts to between -19.4 (±3.8) percent for primary and lower secondary education and 12.9 (±4.0) percent for post secondary education and is the largest for the three education groups in absolute figures.

Table 4.11. Income group 2 according to the Register on income and taxation. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	1,662,000 (±44,000)	1,767,000 (±34,000)	-105,000 (±28,000)	*	-5.9 (±1.6)	*
Men 16-74	859,000 (±32,000)	902,000 (±25,000)	-43,000 (±20,000)	*	-4.8 (±2.2)	*
Women 16-74	803,000 (±31,000)	865,000 (±24,000)	-62,000 (±20,000)	*	-7.1 (±2.3)	*
Total 20-64	1,516,000 (±41,000)	1,606,000 (±31,000)	-90,000 (±27,000)	*	-5.6 (±1.7)	*
Men 20-64	779,000 (±30,000)	820,000 (±23,000)	-42,000 (±19,000)	*	-5.1 (±2.3)	*
Women 20-64	737,000 (±29,000)	786,000 (±22,000)	-49,000 (±19,000)	*	-6.2 (±2.4)	*
Born in Sweden 16-74	1,295,000 (±38,000)	1,395,000 (±30,000)	-100,000 (±23,000)	*	-7.2 (±1.7)	*
Foreign born 16-74	367,000 (±24,000)	372,000 (±17,000)	-5,000 (±17,000)		-1.3 (±4.5)	
Primary and lower secondary edu. 16-74	219,000 (±18,000)	272,000 (±16,000)	-53,000 (±10,000)	*	-19.4 (±3.8)	*
Upper secondary edu. 16-74	835,000 (±34,000)	953,000 (±27,000)	-117,000 (±21,000)	*	-12.3 (±2.2)	*
Post secondary edu. 16-74	591,000 (±30,000)	524,000 (±21,000)	68,000 (±21,000)	*	12.9 (±4.0)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

In Table 4.12, the estimates regarding the number of people in income group 3 according to the Register on income and taxation for December 2015 are shown. For all study domains except primary and lower secondary and upper secondary

education, the estimated number of people in income group 3 is higher when the estimate is based on the response set than when it is based on the sample set. For the groups of primary and lower secondary education and upper secondary education, the relationship is the opposite. The relative bias amounts to between -12.1 (±4.6) percent for primary and lower secondary education and 16.4 (±1.9) percent for post secondary education. In absolute figures, the relative bias is largest for the groups foreign born persons, primary and lower secondary education and post secondary education.

Table 4.12. Income group 3 according to the Register on income and taxation. 16-74 years. December 2015. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-74	2,964,000 (±39,000)	2,805,000 (±31,000)	160,000 (±24,000)	*	5.7 (±0.9)	*
Men 16-74	1,543,000 (±30,000)	1,450,000 (±24,000)	93,000 (±19,000)	*	6.4 (±1.3)	*
Women 16-74	1,422,000 (±29,000)	1,355,000 (±23,000)	67,000 (±18,000)	*	4.9 (±1.4)	*
Total 20-64	2,911,000 (±39,000)	2,746,000 (±30,000)	165,000 (±24,000)	*	6.0 (±0.9)	*
Men 20-64	1,512,000 (±30,000)	1,418,000 (±23,000)	94,000 (±19,000)	*	6.6 (±1.3)	*
Women 20-64	1,399,000 (±29,000)	1,328,000 (±22,000)	70,000 (±18,000)	*	5.3 (±1.4)	*
Born in Sweden 16-74	2,534,000 (±38,000)	2,413,000 (±30,000)	121,000 (±23,000)	*	5.0 (±1.0)	*
Foreign born 16-74	431,000 (±24,000)	392,000 (±17,000)	39,000 (±17,000)	*	10.0 (±4.3)	*
Primary and lower secondary edu. 16-74	172,000 (±16,000)	196,000 (±14,000)	-24,000 (±9,000)	*	-12.1 (±4.6)	*
Upper secondary edu. 16-74	1,209,000 (±36,000)	1,246,000 (±29,000)	-36,000 (±22,000)	*	-2.9 (±1.8)	*
Post secondary edu. 16-74	1,577,000 (±38,000)	1,355,000 (±29,000)	222,000 (±25,000)	*	16.4 (±1.9)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

In Appendix 2, the estimates regarding the number of people in income group 3 by age groups are presented. For the age groups 16-24 years and 65-74 years, the estimated number of people in income group 3 is lower when the estimate is based

on the response set than when the estimate is based on the sample set. For the other age groups, the relationship is the opposite; the estimated number of people in income group 3 is higher when the estimate is based on the response set than when the estimate is based on the sample set. The relative bias in the age groups amounts to between -12.0 (±8.5) and 8.5 (±3.2) percent.

4.2.5 Young people who neither work nor study

To supplement and provide a more balanced picture of young people's situation on the labour market, the LFS publishes statistics regarding the number of young people who neither work nor study since June 2014. This classification is called NEET, an abbreviation for *Not in employment, education or training*.

To study how estimates regarding quantities based on NEET are affected by nonresponse, the register variable UVAS is used, where UVAS is the Swedish abbreviation for "young people who neither work nor study". Although they appear to have similar names, NEET and UVAS denote different things. NEET is a classification based on individual information collected in the LFS and UVAS is based entirely on the register data that has a delay of around two years. The variable UVAS is derived by Statistics Sweden based on data from several different authorities (Swedish Tax Agency, Swedish Social Insurance Agency, etc.). Statistics based on the variable are published once a year by the Theme Group Youth, at http://www.ungidag.se. As the variable definition that the Theme Group Youth uses is partly based on data that Statistics Sweden does not dispose over, a slightly modified definition is used within the scope of this report.

In the tables below, UVAS is studied regarding 2014 based on selected study domains.

Table 4.13 shows the number estimates for the variable UVAS regarding the age group 16-24 years. For the total population, the estimate that is based on the response set is 60,900 (±4,700) and the estimate that is based on the sample set is 86,000 (±4,000). This gives a bias of -25,100 (±2,500) and a relative bias of -29.1 (±3.2) percent.

Division by sex shows that the estimated number of men belonging to UVAS is larger than the corresponding number of women, which is also clear from the bias, which is higher for men, -14,600 (±1,200), than for women, -10,500 (±2,200). The relative bias is also higher for men, -30.7 (±3.1) percent, than for women, -27.2 (±6.0) percent.

The bias for the age group 16-19 years is -5,400 (±700) and is thereby lower than the bias for the age group 20-24 where the bias is -19,700 (±2,400). For the relative bias, the relationship is the opposite; for the age group 16-19 years, the bias is -33.6 (±5.7) percent and for the age group 20-24 years, it is -28.1 (±3.7) percent.

Both the bias and the relative bias are higher for those born in Sweden than foreign born persons. For those born in Sweden, the bias is -20,400 (±2,200) and for foreign born persons, it is -4,600 (±1,100). The relative bias is -29.4 (±3.6) percent for those born in Sweden and -27.9 (±7.5) percent for foreign born persons.

Division by level of education shows that the bias is lowest for those with post secondary education, -1,200 (±700), and highest for those with primary and lower secondary education, -10,500 (±1,600). The relative bias is the lowest for those with upper secondary education, -17.9 (±5.6) percent and the highest relative bias is obtained for the group with post secondary education, -30.2 (±19.6) percent.

However, it should be noted that because people with post secondary education is a small group, the uncertainty is high for the relative bias.

Table 4.13. Young people who neither work nor study according to UVAS. 16-24 years. Year 2014. Number.

Breakdown	Estimate response set	Estimate sample set	Bias		Relative bias	
Total 16-24	60,900 (±4,700)	86,000 (±4,000)	-25,100 (±2,500)	*	-29.1 (±3.2)	*
Men 16-24	32,800 (±3,100)	47,400 (±2,900)	-14,600 (±1,200)	*	-30.7 (±3.1)	*
Women 16-24	28,100 (±3,500)	38,600 (±2,700)	-10,500 (±2,200)	*	-27.2 (±6.0)	*
Total 16-19	10,700 (±1,800)	16,100 (±1,600)	-5,400 (±700)	*	-33.6 (±5.7)	*
Total 20-24	50,200 (±4,300)	69,900 (±3,600)	-19,700 (±2,400)	*	-28.1 (±3.7)	*
Born in Sweden	49,100 (±4,200)	69,500 (±3,500)	-20,400 (±2,200)	*	-29.4 (±3.6)	*
Foreign born	11,900 (±2,200)	16,500 (±1,900)	-4,600 (±1,100)	*	-27.9 (±7.5)	*
Primary and lower secondary edu. 16-74	26,100 (±3,200)	36,600 (±2,700)	-10,500 (±1,600)	*	-28.9 (±4.9)	*
Upper secondary edu. 16-74	30,200 (±3,300)	36,800 (±2,600)	-6,600 (±2,000)	*	-17.9 (±5.6)	*
Post secondary edu. 16-74	2,600 (±1,000)	3,800 (±700)	-1,200 (±700)	*	-30.2 (±19.6)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

Table 4.14 shows the relative estimates for the variable UVAS regarding the age group 16-24 years. For the total population, the estimate that is based on the response set is 5.5 (±0.4) percent and the estimate that is based on the sample set is 7.8 (±0.4) percent. This gives a bias of -2.3 (±0.2). Divided by sex, the same pattern is obtained for relative estimates as for numbers, i.e. the bias is higher for men than for women. For men, the bias is -2.5 (±0.2) percentage points and for women, it is -2.0 (±0.4) percentage points.

Divided by age, the same pattern is obtained for relative estimates as for numbers with a higher bias in the age group 20-24 years. The bias is -1.2 (±0.2) percentage points in the age group 16-19 and -2.9 (±0.4) percentage points in the age group 20-24 years.

For relative estimates, the bias is higher for foreign born persons than for those born in Sweden, which was not the case for number. For those born in Sweden, the bias is -2.0 (±0.2) percentage points and for foreign born persons, it is -4.0 (±0.6) percentage points.

When the division is done by level of education, the same pattern is obtained for relative estimates as for estimates of numbers. The bias is lowest for those with post secondary education, -0.8 (±0.2) percentage points, and highest for those with primary and lower secondary education, -2.5 (±0.4) percentage points.

Table 4.14. Young people who neither work nor study according to UVAS. 16-24 years. Year 2014. Percent.

Breakdown	Estimate response set	Estimate sample set	Bias	
Total 16-24	5.5 (±0.4)	7.8 (±0.4)	-2.3 (±0.2)	*
Men 16-24	5.8 (±0.6)	8.3 (±0.5)	-2.5 (±0.2)	*
Women 16-24	5.2 (±0.7)	7.2 (±0.5)	-2.0 (±0.4)	*
Total 16-19	2.5 (±0.4)	3.7 (±0.4)	-1.2 (±0.2)	*
Total 20-24	7.5 (±0.6)	10.4 (±0.5)	-2.9 (±0.4)	*
Born in Sweden	5.2 (±0.4)	7.2 (±0.4)	-2.0 (±0.2)	*
Foreign born	7.7 (±1.4)	11.7 (±1.3)	-4.0 (±0.6)	*
Primary and lower secondary edu. 16-74	6.9 (±0.7)	9.4 (±0.6)	-2.5 (±0.4)	*
Upper secondary edu. 16-74	6.4 (±0.7)	7.3 (±0.5)	-0.9 (±0.5)	*
Post secondary edu. 16-74	1.1 (±0.5)	1.9 (±0.4)	-0.8 (±0.2)	*

* Marks that the estimated bias and relative bias, respectively, are significantly different from zero, at a significance level of 5 percent.

The overall picture regarding nonresponse bias when the register variable UVAS is studied, is that the estimate for the response set is lower than the estimate for the sample set for all groups. The relative bias observed for the number estimates shows that the estimates are underestimated by around 30 percent comparing the response and sample set. When divisions by study domains are done, the largest

difference is obtained between groups for relative estimates regarding division by those born in Sweden/foreign born and by level of education.

4.2.6 Summary of the above chapters

In Tables 4.1 – 4.6, bias estimates are presented for employed persons, unemployed persons and those not in the labour force according to SAEAR, survey variables that are expected to be strongly correlated with the auxiliary information that is used in the LFS. In general, the estimated number of employed persons is larger in the response set than in the sample set, while the opposite relationship holds for those not in the labour force. However, the estimated relative bias, which provides the size of the bias in relation to the size of the expected value of the survey variable, is relatively low. Except for the divisions by level of education, the relative bias, in absolute figures and for most of the study domains, is below 10 percent. When division is done by level of education, the relative bias in absolute figures is larger, often over 10 percent.

Tables 4.7-4.12 present bias estimates for variables that are not expected to be as strongly correlated with the auxiliary information that is used in the LFS. However, the pattern is similar to what is observed for the SAEAR variables. A large number of bias estimates are significantly different from zero. In general, the estimated number of employees, students and people in income group 3 is larger in the response set than in the sample set, while the opposite relationship holds for income group 1 and 2. At the same time, the relative bias is relatively low except for students and the study domains for level of education.

In Tables 4.13 and 4.14, the bias estimates are presented for young people who neither work nor study. Both the estimated number and the relative estimate are significantly lower for those in the response set than in the sample set, which applies to all study domains. The relative bias is considerably higher than for the previously presented variables. For most of the study domains, it is around -30 percent.

An overall result from Section 4.2 is that the relative bias in absolute figures is higher when division is done by level of education. The general and strong pattern is that the number and relative estimates are lower in the response set than in the sample set for the groups of primary and lower secondary education and upper secondary education, while the opposite applies for post secondary education. In absolute figures, the largest relative bias is generally obtained for the group post secondary education.

4.3 Estimates of change

The previous section shows that the estimates of the number of unemployed persons according to SAEAR only show differences between the response and sample sets that are significantly different from zero for a few study domains. The same differences for the number of employed persons are significant for an overwhelming majority of the groups. However, the relative bias for the number of employed persons shows similar patterns over time regardless of what set the estimate is based on, which means it may be of interest to study which effect the occurrence of nonresponse has on estimates of change.

A limitation of using the variable SAEAR is that it is created from registers that are only produced on an annual level. To expand the analysis for monthly estimates, a new variable is created: SAR ("**S**ysselsatt eller **A**rbetslös utifrån **R**egistervariabler"

or employed or unemployed based on register variables). This is done using statistics based on the yearly income statements of employees and recipients of taxable social benefit statements [13] (KU register) and information from the Swedish Public Employment Service regarding the current reference month.

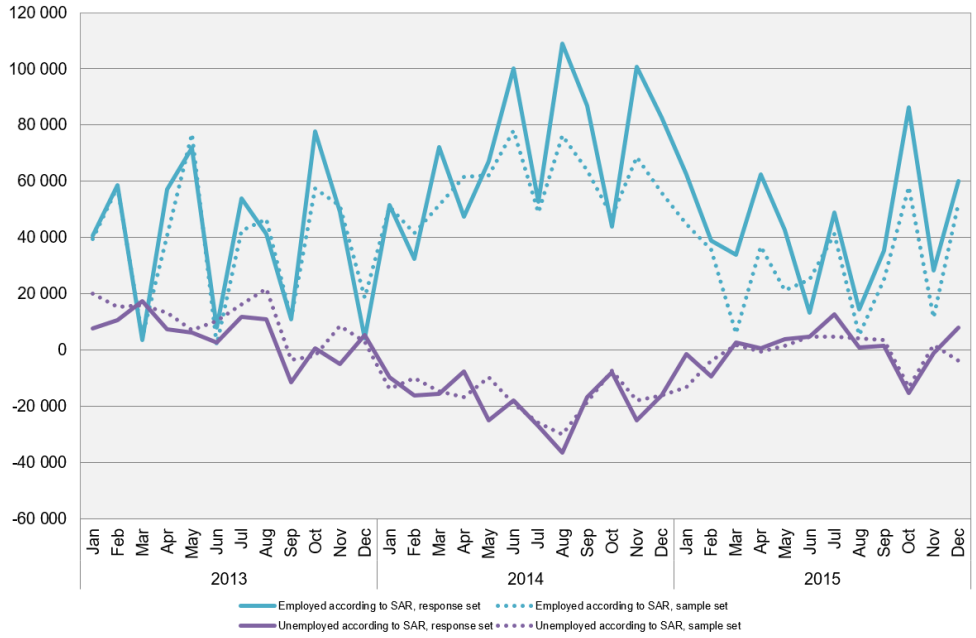
To try to identify those who were employed a specific month, the KU register is used, which consists of information from the Swedish Tax Agency. This register contains statements of earnings information with information on the first and last month for each employment. Based on this information, an individual is classified as employed if any employment period includes the current reference month in the LFS in which the individual was a part of the sample. Remaining individuals are categorised as unemployed if they are registered as unemployed (openly unemployed + job-seekers in programmes with activity grants) according to Af.

In this section two different types of diagrams are presented. The first shows estimates of change for those employed and unemployed according to SAR. The changes that are estimated are those between corresponding months in consecutive years. Both estimates of change based on the sample and response set are shown in the diagrams. It is of extra importance to analyse if there are differences between these estimates of change that are significantly different from zero. Therefore, the difference between the estimates of change based on response and sample set and the corresponding 95-percent confidence intervals are presented in the other diagram type. A difference is significantly different from zero when its confidence interval does not cover the value zero. This type of diagram is presented here only for employed persons; for unemployed persons, the diagrams are presented in Appendix 4.

[13] See Statistics Sweden (2015c)

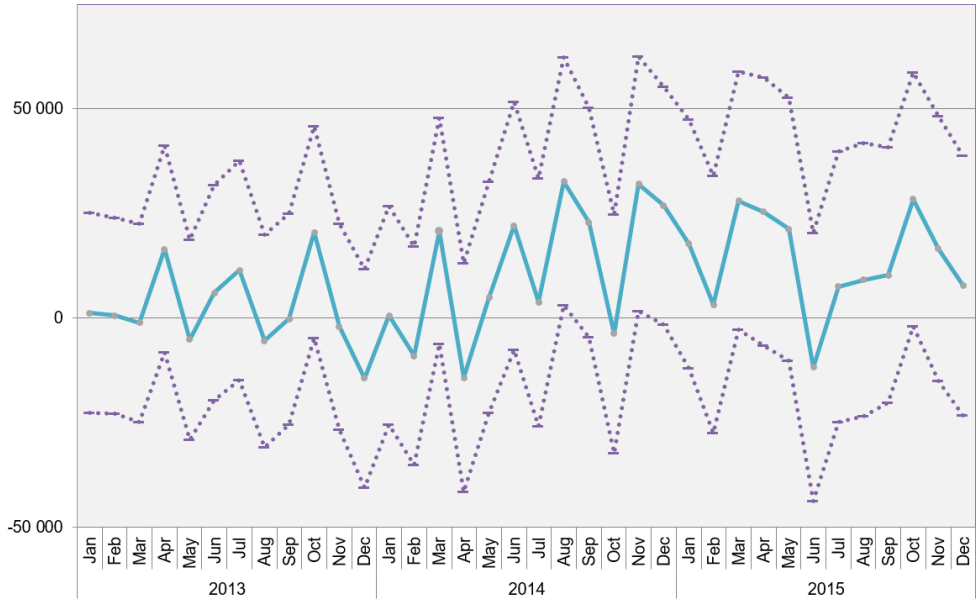
In Diagram 4.4, estimates of change are shown for the number of employed and unemployed persons in the age group 16-74 years. A strong positive correlation is observed between the estimates based on the response and sample set for both employed and unemployed persons. For employed persons, small deviations are generally observed between the two estimates of change. The exceptions are a few months that occur mainly in 2014 where the estimates of change that are based on the response set are somewhat larger than those based on the sample set. Occasional larger deviations are also observed for unemployed persons, although without systematic presence.

Diagram 4.4. Estimates of change for the number of employed and unemployed persons according to SAR. 16-74 years. January 2013 – December 2015. Number.



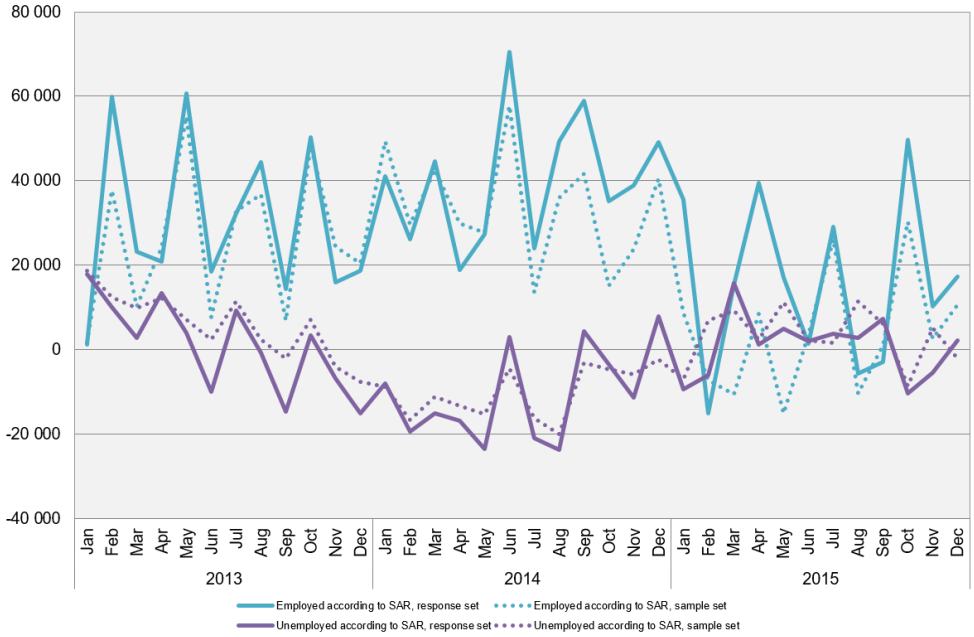
The difference between the estimates of change and the corresponding confidence intervals are presented in Diagram 4.5. The diagram shows that the difference for employed persons is only significantly different from zero for two of the months. The same applies to unemployed persons; see Appendix 4.

Diagram 4.5. Estimated bias with corresponding 95-percent confidence interval for change estimates of the number of employed persons according to SAR. 16-74 years. January 2013 – December 2015. Number.



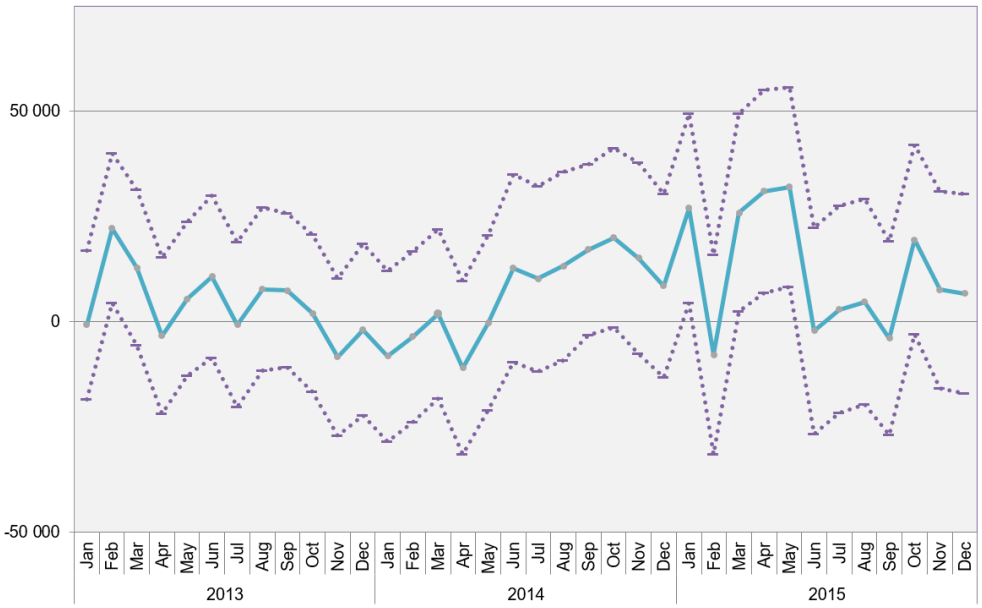
In Diagram 4.6, estimates of change are shown for the number of employed and unemployed men in the age group 16-74 years. The positive correlation between the estimates based on the response and the sample set appears to continue to be strong for both employed and unemployed men. The deviations between the two estimates of change appear to be somewhat larger for this group compared with those observed for the total population, but they are still generally small.

Diagram 4.6. Estimates of change for the number of employed and unemployed persons according to SAR. Men aged 16-74. January 2013 – December 2015. Number.



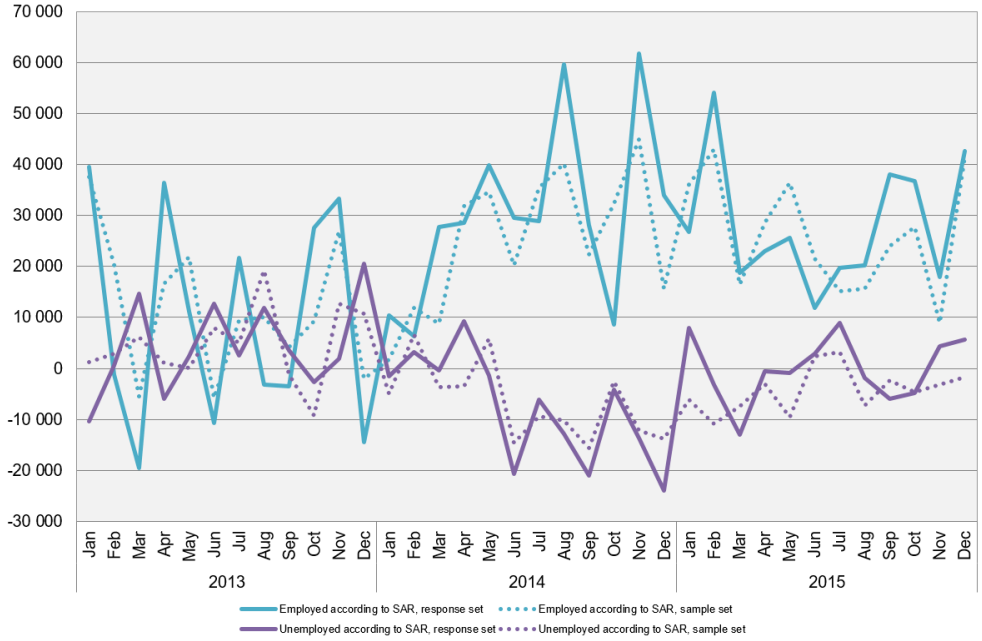
In Diagram 4.7, differences are shown between the estimates of change for the number of employed men based on the response and sample set. The confidence intervals of the diagram show that the difference between the estimates of change is significantly different from zero for five of the months. Four of these occur in 2015 and for all, the estimate of change based on the response set is larger than the one based on the sample set. For unemployed men, differences that are statistically significantly different from zero are only observed for three of the months; see Appendix 4.

Diagram 4.7. Estimated bias with corresponding 95-percent confidence interval for estimates of change of the number of employed persons according to SAR. Men aged 16-74. January 2013 – December 2015. Number.



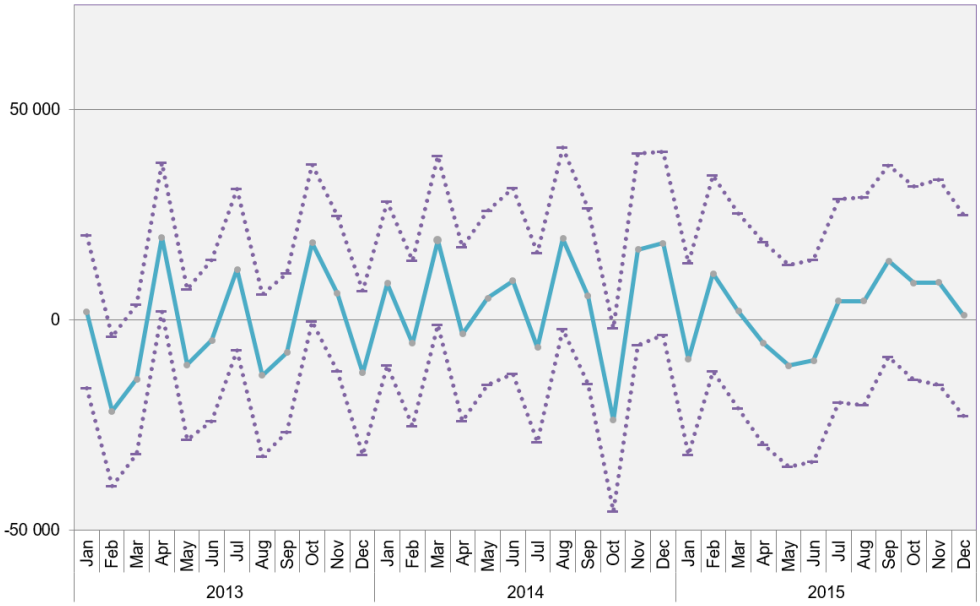
In Diagram 4.8, estimates of change are shown for the number of employed and unemployed women in the age group 16-74 years. The pattern is similar to that observed for men and the positive correlation between the estimates of change based on the response and sample sets continues to be strong. Some clear deviations are observed between the two estimates of change, but they generally appear to be small and without systematic presence.

Diagram 4.8. Estimates of change for the number of employed and unemployed persons according to SAR. Women aged 16-74. January 2013 – December 2015. Number.



In Diagram 4.9, differences are shown between the estimates of change for the number of employed women based on the response and sample set. The diagram shows that the difference between the estimates of change is significantly different from zero for three of the months. For unemployed women, differences significantly different from zero are observed for four of the months; see Appendix 4. There is no indication that the differences are systematic for either employed or unemployed women.

Diagram 4.9. Estimated bias with corresponding 95-percent confidence interval for estimates of change of the number of employed persons according to SAR. Women aged 16-74. January 2013 – December 2015. Number.

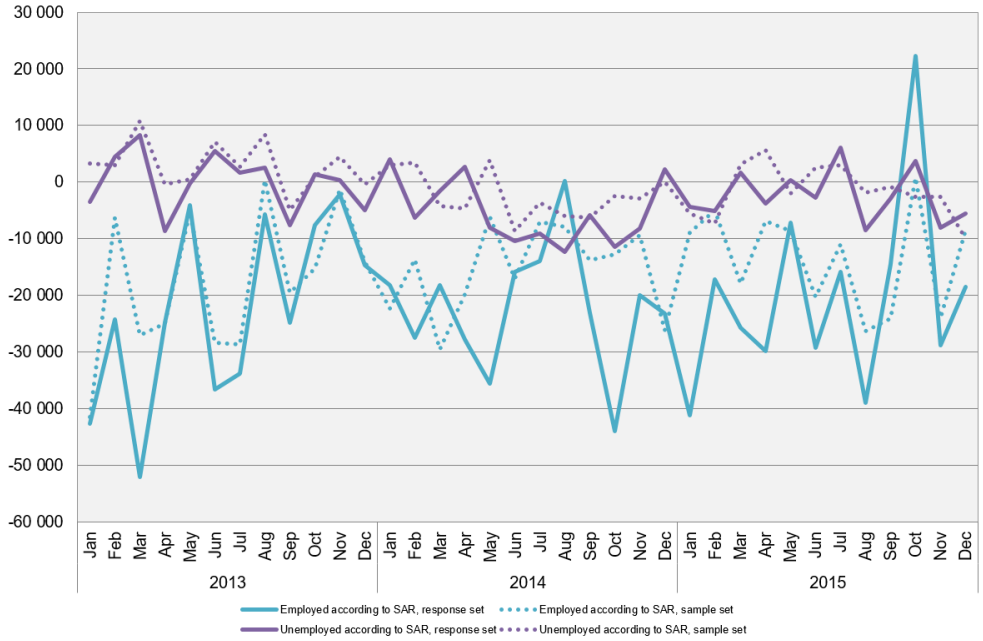


The estimates of change for the number of employed and unemployed persons in the age group 20-64 years are presented in Appendix 3; they show similar patterns as those for the age group 16-74 years. The differences continue to be relatively small for men and women as well as for the total population. The confidence intervals show only a few differences that are significantly different from zero. For the majority of the significant differences, the estimates of change that are based on the response set are larger than those based on the sample set, but there are no clear indications of a systematic presence.

In Appendix 3, the estimates of change are presented for the age group 16-74 years by those born in Sweden/foreign born. For employed persons, a weak tendency is observed for both persons born in Sweden and foreign born persons for the estimates of change to be higher when it is based on the response set rather than the sample set. The confidence intervals show, however, that this difference is only significantly different from zero for a total of five of the months. For those born in Sweden, the estimates of change for the number of unemployed persons appears to be somewhat lower when based on the response set rather than the sample set. The confidence intervals show that these differences are significantly different from zero for five of the months. For foreign born persons, none of the differences between the estimates of change for the number of unemployed persons are significantly different from zero.

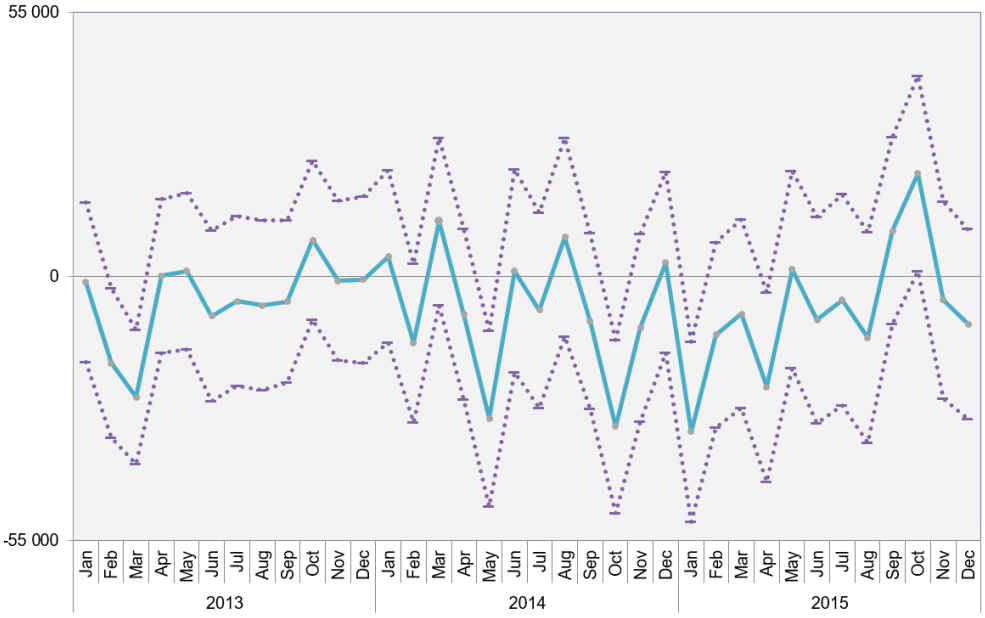
In Diagram 4.10, estimates of change are shown for the number of employed and unemployed persons with primary and lower secondary education. For employed persons, the difference between the estimates of change based on the response and sample set appears to be somewhat larger than for previously presented groups. In a number of months during 2014 and 2015, the estimate based on the response set appears to be lower than the estimate based on the sample set. A few clear deviations between the two estimates of change are also observed for the number of unemployed persons. The correlation between the estimates of change based on the response and the sample set still appears to be relatively strongly positive for both employed and unemployed persons.

Diagram 4.10. Estimates of Change for the number of employed and unemployed persons according to SAR. Primary and lower secondary education, aged 16-74. January 2013 – December 2015. Number.



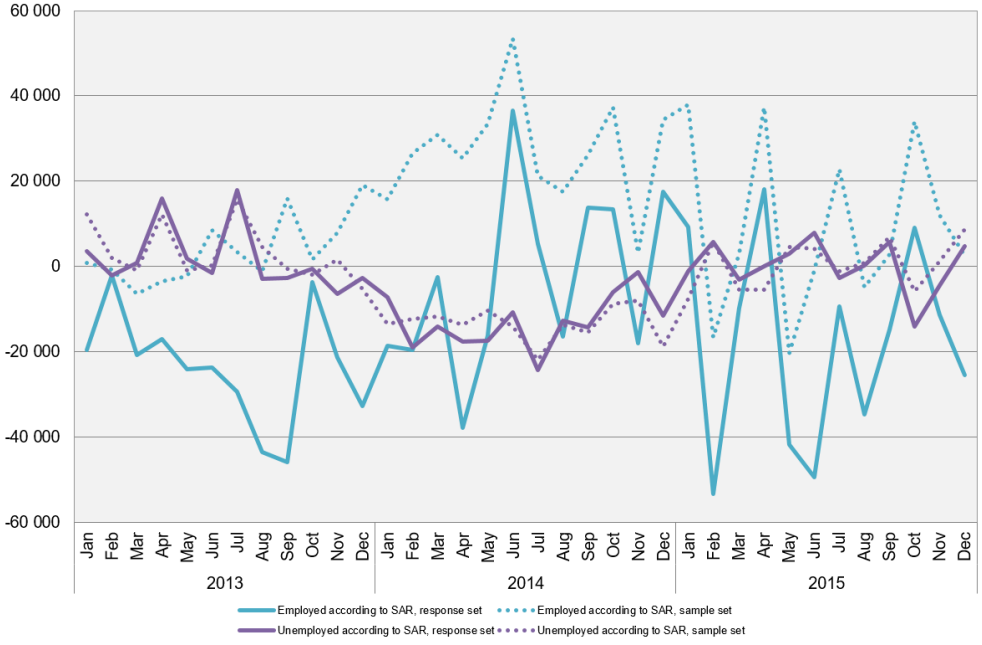
In Diagram 4.11, differences are shown between the estimates of change for the number of employed persons with primary and lower secondary education based on the response and sample set. The confidence intervals show that the difference between the estimates of change is significantly different from zero for six of the months. For five of these months, the estimates of change based on the response set are lower than those based on the sample set. For unemployed persons, differences significantly different from zero are observed for three months; see Appendix 4. For all of the months with significant differences, the estimates of change based on the response set are lower than those based on the sample set.

Diagram 4.11. Estimated bias with corresponding 95-percent confidence interval for estimates of change of the number of employed persons according to SAR. Primary and lower secondary education, total, aged 16-74. January 2013 – December 2015. Number.



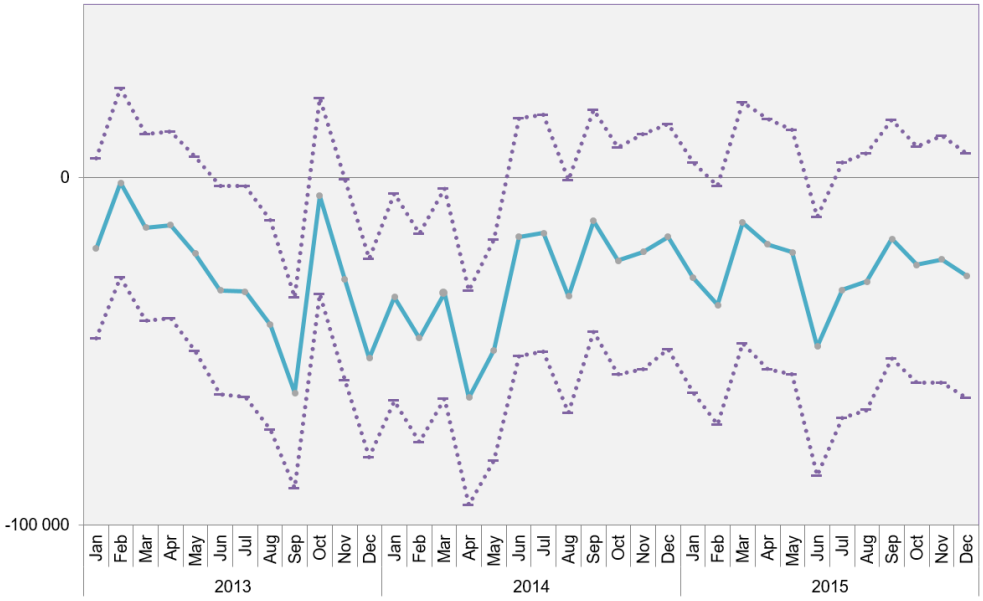
In Diagram 4.12, estimates of change are shown for the number of employed and unemployed persons with upper secondary education. For employed persons, the estimates of change based on the response set appear to be systematically lower than those based on the sample set. This applies to all months and the difference appears to be largest in the first half of the presented period. For unemployed persons, the observed differences are smaller and do not appear to be systematic. A positive correlation between the estimates of change based on the response and sample set is still observed, although somewhat weaker compared with the group with primary and lower secondary education.

Diagram 4.12. Estimates of change estimates for the number of employed and unemployed persons according to SAR. Upper secondary education, aged 16-74. January 2013 – December 2015. Number.



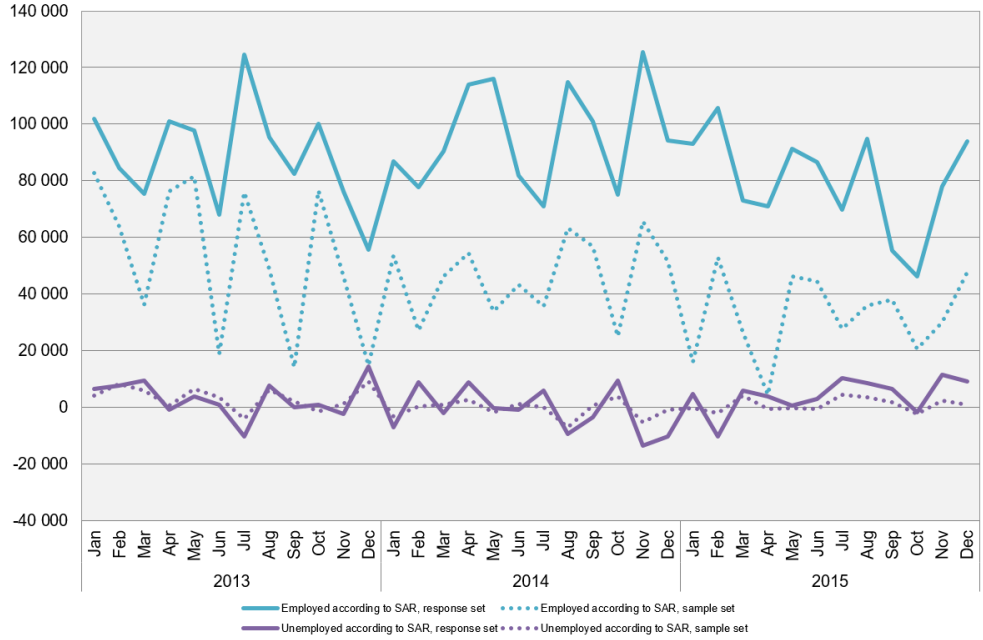
In Diagram 4.13, differences are shown between the estimates of change for the number of employed persons with upper secondary education based on the response and sample set. The confidence intervals show that the difference between the estimates of change is significantly different from zero for 14 months. For all of these months, the estimates of change based on the response set are lower than those based on the sample set, which indicates a systematic difference between the estimates of change. During the analysis period, the difference amounts to between -1,000 and -63,000. For unemployed persons with upper secondary education, no differences are observed that are significantly different from zero; see Appendix 4.

Diagram 4.13. Estimated bias with corresponding 95-percent confidence interval for estimates of change of the number of employed persons according to SAR. Upper secondary education, aged 16-74. January 2013 – December 2015. Number.



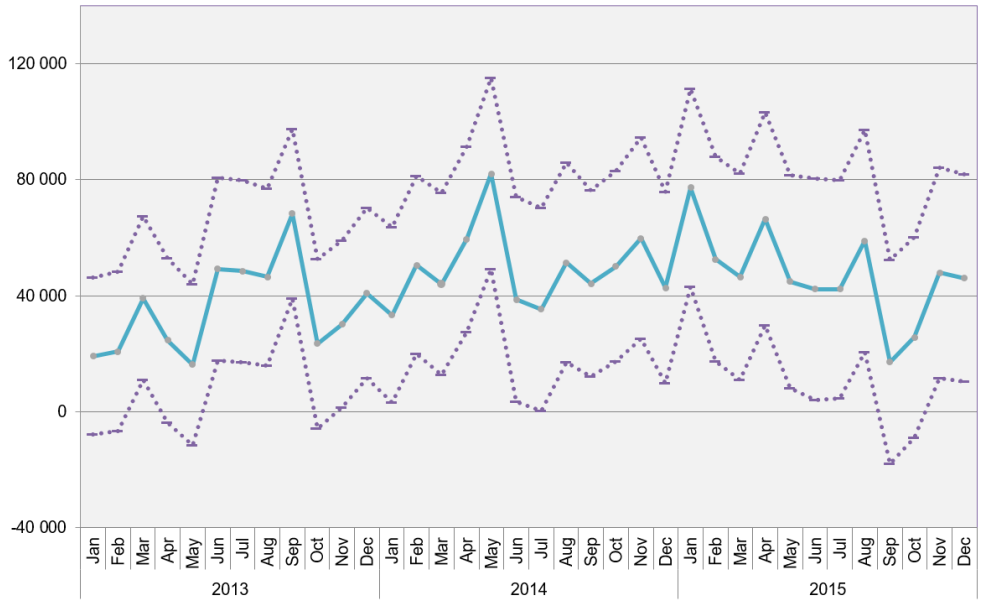
In Diagram 4.14, estimates of change are shown for the number of employed and unemployed persons with post secondary education. For employed persons, a clear difference is observed between the estimates of change based on the response and sample set. The estimates based on the response set are systematically higher over the entire analysis period. For unemployed persons, certain differences are observed, but they are not as large and do not appear to be systematic. The correlation observed between the estimates of change based on the response and sample sets is still relatively strongly positive.

Diagram 4.14. Estimates of change for the number of employed and unemployed persons according to SAR. Post secondary education, aged 16-74. January 2013 – December 2015. Number.



In Diagram 4.15, differences are shown between the estimates of change for the number of employed persons with post secondary education based on the response and sample set. The confidence intervals show that the difference between the estimates of change is significantly different from zero for 29 months. For all of these months, the estimates of change based on the response set are higher than those based on the sample set, which indicates a systematic difference between the change estimates. During the analysed period, the difference amounts to between 16,000 and 82,000. For unemployed persons with post secondary education, two differences are observed that are significantly different from zero; see Appendix 4.

Diagram 4.15. Estimated bias with corresponding 95-percent confidence interval for estimates of change of the number of employed persons according SAR. Post secondary education, aged 16-74. January 2013 – December 2015. Number.



4.3.1 Summary of the above chapter

In Diagrams 4.4-4.15, estimates of change are presented for employed and unemployed persons based on the response and sample sets, as well as the difference between these estimates. For unemployed persons, the results show that only a small percentage of the differences are significantly different from zero. This holds true for all study domains.

The results for employed persons are similar to those for the unemployed persons for all study domains except level of education. For level of education, systematic differences that are significantly different from zero are observed for upper secondary and post secondary education, while the differences for primary and lower secondary education are significantly different from zero to a lower extent. The estimates of change for upper secondary education is lower when the estimate is based on the response set than when it is based on the sample set, while the opposite relationship holds for the group with post secondary education.

5 Conclusions and summary

The results regarding estimated nonresponse bias presented in the report are ambiguous and vary depending on what type of variable and what study domain is analysed. As the method for adjusting for nonresponse in the LFS is based on the use of auxiliary information in the estimation phase, it is expected that the problems with nonresponse bias should be the smallest when the analysed target variables and the division of the study domains strongly correlate with the auxiliary information. These expectations also largely agree with the report's final results.

The analysis of employed persons, unemployed persons and those not in the labour force based on the register variable SAEAR indicates that when today's estimation process is used, the issue with nonresponse bias is of a relatively small scope. Since a large number of bias estimates are significantly different from zero, we cannot draw the conclusion that the estimators used are not affected by nonresponse bias. However, the relative bias for aggregated measurements is on a level that is deemed to be low. In absolute figures, the relative bias is about 0-15 percent. The results are expected as these survey variables are expected to be strongly correlated with the auxiliary information used in the LFS. Since the definition of SAEAR is such that it is expected to agree relatively well with the classification of the groups of employed, unemployed or those not in the labour force according to the LFS, it is likely the case that the conclusion is also applicable to the estimates of the LFS according to the same classification.

Of the bias estimates that are based on SAEAR, the main part of the estimates that are significantly different from zero are obtained for employed persons and those not in the labour force, while only a few bias estimates are significant for unemployed persons. The reason may be that the register information from Af refers to the same period in both the derivation of SAEAR and in the auxiliary information. However, there is a difference between the reference period in the register information from RAMS used in the auxiliary information and the one used in SAEAR. Accordingly, the risk of nonresponse bias, when SAEAR is studied, should be lower for unemployed compared with employed persons and those not in the labour force.

Register variables that are not expected to be strongly correlated with the auxiliary information used in the LFS are also studied, including those employed according to RAKS, students according to RPU and three different income groups according to IoT. The pattern for these variables is similar to that observed for SAEAR. A large number of bias estimates are significantly different from zero, but the relative bias is on a relatively low level. Aside from the study domains for education, the relative bias in absolute figures is about 0-10 percent for employees and the three income groups.

It is import to note that the result above applies to the greatest extent when the survey variables are broken down into study domains that also co-vary strongly with the auxiliary information, such as sex, age and country of birth. When a division is done by level of education, which is not used in the auxiliary information, a larger relative bias is observed and the results are somewhat more troubling. The bias estimates show that the target variables are generally overestimated for the study domain of primary and lower secondary education and overestimated for the domain post secondary education. Over- and

underestimation for these groups is at around 10-20 percent. This indicates that persons with primary and lower secondary education are underrepresented in the response set while person with post secondary education are overrepresented, and that the auxiliary information used does not fully adjust for this bias. However, the fact that the number of people with primary and lower secondary education and post secondary education are generally under- and overestimated, respectively, leads to the effect being smaller for the relative measurement, since both the numerator and the denominator are affected by nonresponse bias. For example, the number of unemployed persons with post secondary education is overestimated, which in the calculation of the unemployment rate is largely compensated by the number in the labour force in the same education group being overestimated.

The fact that the nonresponse is higher among people with primary and lower secondary education than among those with post secondary education was previously established in Statistics Sweden (2015a) and tests to use register information about education as auxiliary information in the LFS have been made. The results of the tests were that the uncertainty in the estimates decreased for the study domains based on level of education and field of education. However, the precision deteriorated for other estimates and the decision was made not to include information on education in the auxiliary vector.

To study in more detail how nonresponse affects uncertainty in estimates regarding NEET, an analysis was done based on the register variable UVAS. The variable builds on a classification principle that by definition is close to the one used to classify according to NEET and can thereby be used to shed light on how nonresponse can be expected to affect the uncertainty in statistical values regarding NEET. The results clearly indicate that the estimates of level regarding UVAS are affected by nonresponse bias. Accordingly, there is reason to believe that the estimates of level regarding NEET are affected by nonresponse bias. The relative bias observed for UVAS indicates that the level estimates regarding NEET may be underestimated on a scale of 30 percent.

In addition to providing estimates regarding the level at a certain time, an important use of the statistics from the LFS is being able to monitor changes over time. For this purpose, the variable SAR was constructed. This variable contains monthly register information about employed persons according to statistics based on the yearly income statements of employees and recipients of taxable social benefit statements and the unemployed persons according to the Swedish Public Employment Service. The variable enables a comparison of how estimates of change based on the response set differ from that based on the sample set. In this analysis, corresponding months in consecutive years are compared. For unemployed persons, the results still look good. The percentage of estimates of change for which differences are obtained between response and sample set that are significantly different from zero is small. The same result is obtained for employed persons, except for the study domains based on level of education. The estimates of change for upper secondary education is systematically lower when the estimate is based on the response set compared to when it is based on the sample set, while the opposite relationship holds for post secondary education.

In conclusion, it can be confirmed that despite nonresponse in the LFS having increased in recent years, the effect of the relative nonresponse bias for employed persons, unemployed persons and those not in the labour force aged 16-74 during the same period is relatively small. This indicates that the problems related to

nonresponse bias observed in the report do not necessarily increase over time and with an increasing nonresponse rate.

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Appendices

Appendix 1 – Industrial classification as auxiliary information

Aux_sni	Industry sector code, SNI 2007	Clear text
1	**A**: 01-03	Agriculture, forestry and fishing
	B: 05-09	Mining and quarrying
	D: 35	Electricity, gas, steam and air conditioning supply
	F: 41,42,43	Construction
2	Part of **C**: 10-24, 31,32	Manufacturing
3	Part of **C**: 25-30, 33	Manufacturing
4	Part of **G**: 46-47	Wholesale and retail trade
	H: 49-53	Transportation and storage
	Part of **J**: 61	Telecommunications
	Part of **N**: 79	Travel agency, tour operator and other reservation service and related activities
5	Part of **J**: 62	Computer programming, consultancy and related activities
	K: 64-66	Financial and insurance activities
	L: 68	Real estate activities
	Part of **M**: 69-71, 73, 74	Professional, scientific and technical activities
	Part of **N**: 77, 78, 80, 81, 82	Administrative and support service activities
	Part of **S**: 94	Activities of membership organisations
6	Part of **M**: 72.75	Professional, scientific and technical activities
	O: 84	Public administration and defence; compulsory social security

	P: 85	Education
	Q: 86-88	Human health and social work activities
7	**E**: 36-39	Water supply; sewerage, waste management and remediation activities
	Part of **G**: 45	Wholesale and retail trade and repair of motor vehicles and motorcycles
	I: 55, 56	Accommodation and food service activities
	Part of **J**: 58, 59, 60, 63	Information and communication
	R: 90-93	Arts, entertainment and recreation
	Part of **S**: 95, 96	Other service
	T: 97,98	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
	U: 99	Activities of extraterritorial organisations and bodies
8	Not employed and/or SNI missing	

Appendix 2 – Tables

Table B2.1. Employed persons according to SAEAR. Both sexes, aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	446,000 (±20,000)	479,000 (±14,000)	-33,000 (±14,000)	*	-6.9 (±2.9)	*
Total	25-34	1,026,000 (±20,000)	996,000 (±14,000)	29,000 (±14,000)	*	3.0 (±1.4)	*
Total	35-44	1,096,000 (±15,000)	1,054,000 (±12,000)	41,000 (±10,000)	*	3.9 (±0.9)	*
Total	45-54	1,130,000 (±15,000)	1,096,000 (±12,000)	33,000 (±10,000)	*	3.0 (±0.9)	*
Total	55-64	833,000 (±18,000)	835,000 (±14,000)	-2,000 (±12,000)		-0.2 (±1.4)	
Total	65-74	196,000 (±19,000)	212,000 (±17,000)	-16,000 (±8,000)	*	-7.4 (±3.6)	*
Total	16-74	4,726,000 (±31,000)	4,673,000 (±23,000)	53,000 (±21,000)	*	1.1 (±0.4)	*
Total	20-64	4,458,000 (±30,000)	4,383,000 (±23,000)	75,000 (±20,000)	*	1.7 (±0.4)	*

Table B2.2. Employed persons according to SAEAR by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Men	16-24	226,000 (±14,000)	240,000 (±10,000)	-14,000 (±9,000)	*	-5.9 (±3.9)	*
Men	25-34	542,000 (±13,000)	522,000 (±10,000)	20,000 (±9,000)	*	3.9 (±1.7)	*
Men	35-44	562,000 (±11,000)	538,000 (±9,000)	24,000 (±7,000)	*	4.5 (±1.3)	*
Men	45-54	585,000 (±10,000)	565,000 (±8,000)	20,000 (±6,000)	*	3.6 (±1.1)	*
Men	55-64	431,000 (±13,000)	427,000 (±10,000)	5,000 (±8,000)		1.1 (±1.9)	
Men	65-74	125,000 (±15,000)	133,000 (±14,000)	-8,000 (±6,000)	*	-6.2 (±4.9)	*
Men	16-74	2,472,000 (±27,000)	2,425,000 (±21,000)	47,000 (±17,000)	*	1.9 (±0.7)	*
Men	20-64	2,311,000 (±24,000)	2,255,000 (±19,000)	56,000 (±16,000)	*	2.5 (±0.7)	*
Women	16-24	220,000 (±14,000)	239,000 (±10,000)	-19,000 (±11,000)	*	-7.9 (±4.4)	*
Women	25-34	483,000 (±15,000)	474,000 (±10,000)	9,000 (±11,000)		2.0 (±2.3)	
Women	35-44	534,000 (±11,000)	517,000 (±9,000)	17,000 (±7,000)	*	3.3 (±1.4)	*
Women	45-54	544,000 (±11,000)	532,000 (±9,000)	13,000 (±8,000)	*	2.4 (±1.4)	*
Women	55-64	402,000 (±13,000)	408,000 (±10,000)	-6,000 (±9,000)		-1.6 (±2.2)	
Women	65-74	71,000 (±12,000)	79,000 (±11,000)	-7,000 (±4,000)	*	-9.5 (±5.9)	*
Women	16-74	2,254,000 (±27,000)	2,248,000 (±21,000)	6,000 (±18,000)		0.3 (±0.8)	
Women	20-64	2,147,000 (±25,000)	2,128,000 (±19,000)	19,000 (±17,000)	*	0.9 (±0.8)	*

Table B2.3. Employed persons according to SAEAR. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Born in Sweden	403,000 (±19,000)	431,000 (±14,000)	-29,000 (±14,000)	*	-6.6 (±3.2)	*
Total	25-54	Born in Sweden	2,636,000 (±28,000)	2,571,000 (±21,000)	65,000 (±19,000)	*	2.5 (±0.7)	*
Total	55-74	Born in Sweden	890,000 (±25,000)	905,000 (±21,000)	-15,000 (±14,000)	*	-1.7 (±1.6)	*
Total	16-74	Born in Sweden	3,929,000 (±33,000)	3,908,000 (±25,000)	21,000 (±21,000)		0.5 (±0.5)	
Total	20-64	Born in Sweden	3,682,000 (±32,000)	3,643,000 (±24,000)	39,000 (±20,000)	*	1.1 (±0.6)	*
Men	16-24	Born in Sweden	199,000 (±13,000)	213,000 (±10,000)	-14,000 (±9,000)	*	-6.7 (±4.3)	*
Men	25-54	Born in Sweden	1,381,000 (±24,000)	1,338,000 (±18,000)	44,000 (±17,000)	*	3.3 (±1.2)	*
Men	55-74	Born in Sweden	490,000 (±20,000)	490,000 (±17,000)	0 (±11,000)		0.1 (±2.2)	
Men	16-74	Born in Sweden	2,070,000 (±31,000)	2,040,000 (±23,000)	30,000 (±20,000)	*	1.5 (±1.0)	*
Men	20-64	Born in Sweden	1,918,000 (±28,000)	1,883,000 (±21,000)	36,000 (±19,000)	*	1.9 (±1.0)	*
Women	16-24	Born in Sweden	204,000 (±14,000)	218,000 (±10,000)	-14,000 (±11,000)	*	-6.6 (±4.8)	*
Women	25-54	Born in Sweden	1,255,000 (±24,000)	1,234,000 (±17,000)	21,000 (±17,000)	*	1.7 (±1.3)	*
Women	55-74	Born in Sweden	400,000 (±18,000)	416,000 (±15,000)	-15,000 (±10,000)	*	-3.7 (±2.4)	*
Women	16-74	Born in Sweden	1,859,000 (±30,000)	1,868,000 (±23,000)	-8,000 (±20,000)		-0.5 (±1.1)	
Women	20-64	Born in Sweden	1,763,000 (±29,000)	1,760,000 (±21,000)	3,000 (±20,000)		0.2 (±1.1)	

Table B2.4. Employed persons according to SAEAR. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Foreign born	43,000 (±9,000)	48,000 (±6,000)	-5,000 (±6,000)		-9.5 (±13.4)	
Total	25-54	Foreign born	614,000 (±25,000)	576,000 (±18,000)	39,000 (±17,000)	*	6.7 (±3.0)	*
Total	55-74	Foreign born	139,000 (±14,000)	141,000 (±11,000)	-2,000 (±9,000)		-1.6 (±6.4)	
Total	16-74	Foreign born	797,000 (±26,000)	765,000 (±19,000)	32,000 (±18,000)	*	4.2 (±2.4)	*
Total	20-64	Foreign born	777,000 (±26,000)	740,000 (±19,000)	37,000 (±18,000)	*	4.9 (±2.5)	*
Men	16-24	Foreign born	27,000 (±7,000)	27,000 (±5,000)	0 (±5,000)		-0.2 (±18.8)	
Men	25-54	Foreign born	309,000 (±20,000)	288,000 (±14,000)	21,000 (±15,000)	*	7.3 (±5.1)	*
Men	55-74	Foreign born	66,000 (±10,000)	70,000 (±8,000)	-4,000 (±6,000)		-5.3 (±9.1)	
Men	16-74	Foreign born	402,000 (±23,000)	385,000 (±16,000)	17,000 (±16,000)	*	4.5 (±4.2)	*
Men	20-64	Foreign born	393,000 (±22,000)	372,000 (±16,000)	21,000 (±16,000)	*	5.5 (±4.3)	*
Women	16-24	Foreign born	16,000 (±6,000)	21,000 (±4,000)	-4,000 (±4,000)	*	-21.8 (±19.9)	*
Women	25-54	Foreign born	306,000 (±20,000)	288,000 (±14,000)	18,000 (±14,000)	*	6.1 (±5.0)	*
Women	55-74	Foreign born	73,000 (±11,000)	71,000 (±8,000)	2,000 (±7,000)		2.1 (±9.5)	
Women	16-74	Foreign born	395,000 (±22,000)	380,000 (±16,000)	15,000 (±16,000)		3.9 (±4.1)	
Women	20-64	Foreign born	384,000 (±22,000)	368,000 (±16,000)	16,000 (±15,000)	*	4.3 (±4.2)	*

Table B2.5. Employed persons according to SAEAR by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	Primary and lower secondary edu.	444,000 (±26,000)	521,000 (±21,000)	-77,000 (±14,000)	*	-14.7 (±2.7)	*
Total	Upper secondary education	2,068,000 (±44,000)	2,226,000 (±34,000)	-158,000 (±27,000)	*	-7.1 (±1.2)	*
Total	Post secondary education	2,191,000 (±43,000)	1,899,000 (±32,000)	292,000 (±28,000)	*	15.4 (±1.5)	*
Men	Primary and lower secondary edu.	289,000 (±21,000)	328,000 (±17,000)	-40,000 (±11,000)	*	-12.1 (±3.5)	*
Men	Upper secondary education	1,188,000 (±33,000)	1,236,000 (±26,000)	-48,000 (±21,000)	*	-3.9 (±1.7)	*
Men	Post secondary education	978,000 (±32,000)	841,000 (±24,000)	137,000 (±21,000)	*	16.3 (±2.5)	*
Women	Primary and lower secondary edu.	156,000 (±15,000)	192,000 (±13,000)	-37,000 (±8,000)	*	-19.2 (±4.4)	*
Women	Upper secondary education	880,000 (±31,000)	990,000 (±24,000)	-110,000 (±19,000)	*	-11.1 (±1.9)	*
Women	Post secondary education	1,214,000 (±31,000)	1,059,000 (±24,000)	155,000 (±20,000)	*	14.7 (±2.0)	*

Table B2.6. Employment rate according to SAEAR. Total aged 16-74. December 2015. Percent.

Sex	Age	Estimate response set	Estimate sample set	Bias	
Total	16-24	41.5 (±1.8)	44.6 (±1.3)	-3.1 (±1.3)	*
Total	25-34	78.9 (±1.5)	76.6 (±1.1)	2.3 (±1.0)	*
Total	35-44	87.0 (±1.2)	83.7 (±1.0)	3.3 (±0.8)	*
Total	45-54	86.4 (±1.2)	83.9 (±0.9)	2.5 (±0.7)	*
Total	55-64	73.1 (±1.6)	73.3 (±1.2)	-0.1 (±1.0)	
Total	65-74	17.8 (±1.7)	19.2 (±1.6)	-1.4 (±0.7)	*
Total	16-74	65.8 (±0.4)	65.1 (±0.3)	0.7 (±0.3)	*
Total	20-64	78.7 (±0.5)	77.4 (±0.4)	1.3 (±0.3)	*

Table B2.7. Employment rate according to SAEAR by sex. 16-74 years. December 2015. Percent.

Sex	Age	Estimate response set	Estimate sample set	Bias	
Men	16-24	40.7 (±2.5)	43.3 (±1.8)	-2.6 (±1.7)	*
Men	25-34	81.4 (±2.0)	78.4 (±1.5)	3.0 (±1.4)	*
Men	35-44	87.6 (±1.7)	83.9 (±1.4)	3.8 (±1.0)	*
Men	45-54	88.2 (±1.6)	85.1 (±1.2)	3.1 (±1.0)	*
Men	55-64	75.5 (±2.2)	74.7 (±1.7)	0.8 (±1.4)	
Men	65-74	23.0 (±2.8)	24.6 (±2.5)	-1.5 (±1.2)	*
Men	16-74	67.9 (±0.8)	66.6 (±0.6)	1.3 (±0.5)	*
Men	20-64	80.2 (±0.8)	78.3 (±0.6)	1.9 (±0.6)	*
Women	16-24	42.4 (±2.8)	46.0 (±1.9)	-3.7 (±2.0)	*
Women	25-34	76.2 (±2.4)	74.7 (±1.6)	1.5 (±1.7)	
Women	35-44	86.3 (±1.8)	83.5 (±1.4)	2.8 (±1.2)	*
Women	45-54	84.6 (±1.8)	82.6 (±1.3)	2.0 (±1.2)	*
Women	55-64	70.7 (±2.4)	71.9 (±1.8)	-1.1 (±1.6)	
Women	65-74	12.8 (±2.2)	14.1 (±2.0)	-1.3 (±0.8)	*
Women	16-74	63.6 (±0.8)	63.5 (±0.6)	0.2 (±0.5)	
Women	20-64	77.2 (±0.9)	76.5 (±0.7)	0.7 (±0.6)	*

Table B2.8. Employment rate according to SAEAR. Born in Sweden, aged 16-74. December 2015. Percent.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	
Total	16-24	Born in Sweden	44.3 (±2.0)	46.8 (±1.4)	-2.5 (±1.4)	*
Total	25-54	Born in Sweden	88.8 (±0.7)	86.8 (±0.5)	2.0 (±0.4)	*
Total	55-74	Born in Sweden	47.4 (±1.2)	48.3 (±1.1)	-0.9 (±0.7)	*
Total	16-74	Born in Sweden	68.2 (±0.6)	67.9 (±0.4)	0.4 (±0.4)	*
Total	20-64	Born in Sweden	82.8 (±0.6)	81.9 (±0.5)	0.9 (±0.4)	*
Men	16-24	Born in Sweden	43.4 (±2.7)	45.2 (±1.9)	-1.8 (±1.9)	
Men	25-54	Born in Sweden	89.7 (±0.9)	87.4 (±0.7)	2.3 (±0.5)	*
Men	55-74	Born in Sweden	51.4 (±1.9)	51.9 (±1.7)	-0.6 (±1.0)	
Men	16-74	Born in Sweden	70.1 (±0.9)	69.3 (±0.7)	0.8 (±0.5)	*
Men	20-64	Born in Sweden	83.8 (±0.9)	82.5 (±0.7)	1.3 (±0.6)	*
Women	16-24	Born in Sweden	45.2 (±3.0)	48.4 (±2.0)	-3.1 (±2.2)	*
Women	25-54	Born in Sweden	87.8 (±1.0)	86.1 (±0.8)	1.7 (±0.7)	*
Women	55-74	Born in Sweden	43.2 (±1.8)	44.6 (±1.5)	-1.4 (±1.0)	*
Women	16-74	Born in Sweden	66.3 (±0.9)	66.3 (±0.7)	-0.1 (±0.6)	
Women	20-64	Born in Sweden	81.7 (±1.0)	81.3 (±0.7)	0.4 (±0.7)	

Table B2.9. Employment rate according to SAEAR. Foreign born, aged 16-74. December 2015. Percent.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	
Total	16-24	Foreign born	26.2 (±5.0)	31.5 (±3.7)	-5.3 (±3.4)	*
Total	25-54	Foreign born	68.5 (±2.1)	63.7 (±1.5)	4.8 (±1.5)	*
Total	55-74	Foreign born	38.6 (±3.7)	38.6 (±2.9)	-0.1 (±2.4)	
Total	16-74	Foreign born	56.0 (±1.8)	53.8 (±1.3)	2.2 (±1.3)	*
Total	20-64	Foreign born	63.9 (±1.8)	61.0 (±1.3)	3.0 (±1.3)	*
Men	16-24	Foreign born	27.9 (±6.5)	32.2 (±4.9)	-4.3 (±4.2)	*
Men	25-54	Foreign born	71.6 (±3.1)	65.2 (±2.2)	6.3 (±2.2)	*
Men	55-74	Foreign born	41.6 (±5.8)	41.0 (±4.3)	0.6 (±3.9)	
Men	16-74	Foreign born	58.5 (±2.7)	55.3 (±1.9)	3.2 (±1.9)	*
Men	20-64	Foreign born	66.5 (±2.7)	62.3 (±1.9)	4.2 (±1.9)	*
Women	16-24	Foreign born	23.7 (±7.7)	30.5 (±5.5)	-6.8 (±5.4)	*
Women	25-54	Foreign born	65.6 (±3.1)	62.2 (±2.2)	3.4 (±2.2)	*
Women	55-74	Foreign born	36.1 (±4.9)	36.5 (±3.9)	-0.3 (±2.9)	
Women	16-74	Foreign born	53.6 (±2.6)	52.3 (±1.9)	1.3 (±1.8)	
Women	20-64	Foreign born	61.5 (±2.7)	59.7 (±1.9)	1.8 (±1.9)	

Table B2.10. Employment rate according to SAEAR by level of education. Total aged 16-74. December 2015. Percent.

Sex	Level of education	Estimate response set	Estimate sample set	Bias	
Total	Primary and lower secondary edu.	38.1 (±1.8)	39.7 (±1.3)	-1.6 (±1.2)	*
Total	Upper secondary education	69.1 (±1.0)	70.1 (±0.8)	-0.9 (±0.7)	*
Total	Post secondary education	76.9 (±1.0)	76.2 (±0.9)	0.7 (±0.5)	*
Men	Primary and lower secondary edu.	45.8 (±2.6)	45.7 (±1.9)	0.1 (±1.8)	
Men	Upper secondary education	72.9 (±1.4)	72.9 (±1.1)	-0.1 (±0.9)	
Men	Post secondary education	76.3 (±1.6)	75.4 (±1.4)	0.9 (±0.9)	*
Women	Primary and lower secondary edu.	28.9 (±2.5)	32.4 (±1.9)	-3.5 (±1.7)	*
Women	Upper secondary education	64.7 (±1.6)	66.8 (±1.2)	-2.1 (±1.1)	*
Women	Post secondary education	77.4 (±1.4)	76.9 (±1.2)	0.6 (±0.8)	

Table B2.11. Unemployed persons according to SAEAR. Total aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias	Relative bias
Total	16-24	48,000 (±10,000)	46,000 (±6,000)	2,000 (±7,000)	4.2 (±15.6)
Total	25-34	68,000 (±11,000)	62,000 (±7,000)	6,000 (±9,000)	10.1 (±13.8)
Total	35-44	59,000 (±10,000)	61,000 (±7,000)	-2,000 (±7,000)	-2.8 (±12.0)
Total	45-54	51,000 (±9,000)	53,000 (±6,000)	-2,000 (±6,000)	-4.2 (±12.0)
Total	55-64	50,000 (±8,000)	46,000 (±5,000)	4,000 (±6,000)	8.1 (±12.1)
Total	65-74	0 (±0)	0 (±0)	0 -	- -
Total	16-74	276,000 (±18,000)	268,000 (±13,000)	8,000 (±13,000)	2.9 (±4.9)
Total	20-64	272,000 (±18,000)	262,000 (±12,000)	10,000 (±13,000)	3.8 (±5.0)

Table B2.12. Unemployed persons according to SAEAR by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias	Relative bias
Men	16-24	31,000 (±7,000)	28,000 (±5,000)	2,000 (±5,000)	7.8 (±19.3)
Men	25-34	34,000 (±8,000)	33,000 (±5,000)	1,000 (±6,000)	4.2 (±18.5)
Men	35-44	35,000 (±8,000)	36,000 (±6,000)	-1,000 (±6,000)	-2.1 (±15.4)
Men	45-54	26,000 (±6,000)	24,000 (±4,000)	1,000 (±5,000)	5.1 (±19.1)
Men	55-64	30,000 (±6,000)	27,000 (±4,000)	3,000 (±4,000)	12.2 (±16.7)
Men	65-74	0 (±0)	0 (±0)	0 -	- -
Men	16-74	156,000 (±15,000)	149,000 (±10,000)	7,000 (±11,000)	4.8 (±7.4)
Men	20-64	153,000 (±15,000)	145,000 (±10,000)	8,000 (±11,000)	5.6 (±7.6)
Women	16-24	17,000 (±6,000)	18,000 (±4,000)	0 (±5,000)	-1.5 (±27.1)
Women	25-34	34,000 (±8,000)	30,000 (±5,000)	5,000 (±6,000)	16.6 (±22.1)
Women	35-44	24,000 (±7,000)	25,000 (±5,000)	-1,000 (±5,000)	-3.8 (±20.4)
Women	45-54	25,000 (±7,000)	29,000 (±5,000)	-3,000 (±4,000)	-12.0 (±15.8)
Women	55-64	20,000 (±5,000)	19,000 (±4,000)	0 (±3,000)	2.4 (±17.7)
Women	65-74	0 (±0)	0 (±0)	0 -	- -
Women	16-74	121,000 (±14,000)	120,000 (±9,000)	1,000 (±10,000)	0.6 (±8.5)
Women	20-64	119,000 (±14,000)	117,000 (±9,000)	2,000 (±10,000)	1.5 (±8.7)

Table B2.13. Unemployed persons according to SAEAR. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	Relative bias
Total	16-24	Born in Sweden	31,000 (±7,000)	34,000 (±5,000)	-3,000 (±5,000)	-9.9 (±15.0)
Total	25-54	Born in Sweden	65,000 (±9,000)	72,000 (±7,000)	-8,000 (±6,000) *	-10.6 (±8.8) *
Total	55-74	Born in Sweden	30,000 (±6,000)	28,000 (±4,000)	2,000 (±4,000)	6.3 (±14.1)
Total	16-74	Born in Sweden	125,000 (±13,000)	134,000 (±9,000)	-9,000 (±9,000) *	-6.9 (±6.6) *
Total	20-64	Born in Sweden	120,000 (±13,000)	128,000 (±9,000)	-8,000 (±9,000)	-6.2 (±6.8)
Men	16-24	Born in Sweden	19,000 (±6,000)	21,000 (±4,000)	-1,000 (±4,000)	-7.1 (±18.7)
Men	25-54	Born in Sweden	35,000 (±7,000)	38,000 (±5,000)	-4,000 (±5,000)	-9.9 (±12.0)
Men	55-74	Born in Sweden	17,000 (±4,000)	16,000 (±3,000)	1,000 (±3,000)	5.8 (±19.3)
Men	16-74	Born in Sweden	71,000 (±10,000)	75,000 (±7,000)	-4,000 (±7,000)	-5.8 (±8.9)
Men	20-64	Born in Sweden	68,000 (±10,000)	72,000 (±7,000)	-4,000 (±7,000)	-5.5 (±9.1)
Women	16-24	Born in Sweden	11,000 (±5,000)	13,000 (±3,000)	-2,000 (±3,000)	-14.4 (±25.5)
Women	25-54	Born in Sweden	30,000 (±7,000)	34,000 (±5,000)	-4,000 (±4,000)	-11.4 (±13.3)
Women	55-74	Born in Sweden	13,000 (±4,000)	12,000 (±3,000)	1,000 (±2,000)	7.1 (±20.3)
Women	16-74	Born in Sweden	54,000 (±9,000)	59,000 (±7,000)	-5,000 (±6,000)	-8.3 (±10.2)
Women	20-64	Born in Sweden	52,000 (±9,000)	57,000 (±6,000)	-4,000 (±6,000)	-7.2 (±10.6)

Table B2.14. Unemployed persons according to SAEAR. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Foreign born	17,000 (±6,000)	12,000 (±3,000)	5,000 (±5,000)		43.5 (±45.7)	
Total	25-54	Foreign born	114,000 (±14,000)	104,000 (±9,000)	10,000 (±11,000)		9.6 (±10.3)	
Total	55-74	Foreign born	20,000 (±5,000)	18,000 (±4,000)	2,000 (±4,000)		10.0 (±22.3)	
Total	16-74	Foreign born	151,000 (±15,000)	134,000 (±10,000)	17,000 (±12,000)	*	12.7 (±8.8)	*
Total	20-64	Foreign born	151,000 (±15,000)	134,000 (±10,000)	18,000 (±12,000)	*	13.4 (±8.8)	*
Men	16-24	Foreign born	11,000 (±5,000)	8,000 (±3,000)	4,000 (±4,000)		47.9 (±55.8)	
Men	25-54	Foreign born	60,000 (±11,000)	55,000 (±7,000)	6,000 (±8,000)		10.3 (±14.9)	
Men	55-74	Foreign born	13,000 (±4,000)	11,000 (±3,000)	2,000 (±3,000)		20.0 (±30.7)	
Men	16-74	Foreign born	85,000 (±12,000)	74,000 (±8,000)	12,000 (±9,000)	*	15.7 (±12.9)	*
Men	20-64	Foreign born	85,000 (±12,000)	73,000 (±8,000)	12,000 (±9,000)	*	16.4 (±13.0)	*
Women	16-24	Foreign born	6,000 (±4,000)	5,000 (±2,000)	2,000 (±4,000)		36.0 (±81.1)	
Women	25-54	Foreign born	54,000 (±10,000)	49,000 (±7,000)	4,000 (±8,000)		8.9 (±16.3)	
Women	55-74	Foreign born	7,000 (±3,000)	7,000 (±2,000)	0 (±2,000)		-5.9 (±34.4)	
Women	16-74	Foreign born	66,000 (±12,000)	61,000 (±7,000)	6,000 (±9,000)		9.2 (±14.6)	
Women	20-64	Foreign born	66,000 (±12,000)	61,000 (±7,000)	6,000 (±9,000)		9.7 (±14.7)	

Table B2.15. Unemployed persons according to SAEAR by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	Primary and lower secondary edu.	82,000 (±12,000)	85,000 (±8,000)	-3,000 (±9,000)		-3.1 (±10.4)	
Total	Upper secondary education	115,000 (±13,000)	116,000 (±9,000)	-2,000 (±9,000)		-1.3 (±8.1)	
Total	Post secondary education	76,000 (±11,000)	65,000 (±7,000)	11,000 (±9,000)	*	17.8 (±13.6)	*
Men	Primary and lower secondary edu.	47,000 (±9,000)	48,000 (±6,000)	0 (±7,000)		-0.8 (±13.9)	
Men	Upper secondary education	64,000 (±10,000)	65,000 (±7,000)	-1,000 (±7,000)		-1.4 (±10.8)	
Men	Post secondary education	44,000 (±9,000)	35,000 (±5,000)	9,000 (±7,000)	*	26.0 (±20.5)	*
Women	Primary and lower secondary edu.	35,000 (±9,000)	37,000 (±6,000)	-2,000 (±6,000)		-6.1 (±16.8)	
Women	Upper secondary education	50,000 (±9,000)	51,000 (±6,000)	-1,000 (±7,000)		-1.2 (±13.0)	
Women	Post secondary education	32,000 (±8,000)	30,000 (±5,000)	2,000 (±6,000)		8.1 (±20.0)	

Table B2.16. Unemployment rate according to SAEAR. Total aged 16-74. December 2015. Percent.

Sex	Age	Estimate response set	Estimate sample set	Bias	
Total	16-24	9.7 (±1.9)	8.8 (±1.2)	0.9 (±1.5)	
Total	25-34	6.3 (±1.0)	5.9 (±0.7)	0.4 (±0.8)	
Total	35-44	5.1 (±0.9)	5.5 (±0.6)	-0.3 (±0.6)	
Total	45-54	4.3 (±0.8)	4.6 (±0.5)	-0.3 (±0.5)	
Total	55-64	5.7 (±0.9)	5.2 (±0.6)	0.4 (±0.6)	
Total	65-74	0.0 (±0.0)	0.1 (±0.1)	-0.1 .	*
Total	16-74	5.5 (±0.4)	5.4 (±0.2)	0.1 (±0.3)	
Total	20-64	5.7 (±0.4)	5.6 (±0.3)	0.1 (±0.3)	

Table B2.17. Unemployment rate according to SAEAR by sex. 16-74 years. December 2015. Percent.

Sex	Age	Estimate response set	Estimate sample set	Bias	
Men	16-24	11.9 (±2.8)	10.6 (±1.8)	1.4 (±2.1)	
Men	25-34	5.9 (±1.4)	5.9 (±0.9)	0.0 (±1.0)	
Men	35-44	5.9 (±1.3)	6.3 (±1.0)	-0.4 (±0.9)	
Men	45-54	4.2 (±1.0)	4.1 (±0.7)	0.1 (±0.7)	
Men	55-64	6.6 (±1.3)	5.9 (±0.9)	0.6 (±0.9)	
Men	65-74	0.0 (±0.0)	0.1 (±0.2)	-0.1 .	*
Men	16-74	5.9 (±0.6)	5.8 (±0.4)	0.2 (±0.4)	
Men	20-64	6.2 (±0.6)	6.0 (±0.4)	0.2 (±0.4)	
Women	16-24	7.3 (±2.6)	6.9 (±1.5)	0.4 (±2.1)	
Women	25-34	6.7 (±1.6)	5.9 (±1.0)	0.8 (±1.2)	
Women	35-44	4.3 (±1.2)	4.6 (±0.9)	-0.3 (±0.9)	
Women	45-54	4.4 (±1.2)	5.1 (±0.9)	-0.7 (±0.8)	
Women	55-64	4.7 (±1.2)	4.5 (±0.8)	0.2 (±0.8)	
Women	65-74	0.0 (±0.0)	0.0 (±0.0)	0.0 (±0.0)	
Women	16-74	5.1 (±0.6)	5.1 (±0.4)	0.0 (±0.4)	
Women	20-64	5.2 (±0.6)	5.2 (±0.4)	0.0 (±0.4)	

Table B2.18. Unemployment rate according to SAEAR. Born in Sweden, aged 16-74. December 2015. Percent.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	
Total	16-24	Born in Sweden	7.0 (±1.7)	7.3 (±1.1)	-0.2 (±1.2)	
Total	25-54	Born in Sweden	2.4 (±0.3)	2.7 (±0.3)	-0.3 (±0.2)	*
Total	55-74	Born in Sweden	3.2 (±0.6)	3.0 (±0.4)	0.2 (±0.4)	
Total	16-74	Born in Sweden	3.1 (±0.3)	3.3 (±0.2)	-0.2 (±0.2)	*
Total	20-64	Born in Sweden	3.2 (±0.3)	3.4 (±0.2)	-0.2 (±0.2)	*
Men	16-24	Born in Sweden	8.8 (±2.5)	8.9 (±1.7)	0.0 (±1.8)	
Men	25-54	Born in Sweden	2.4 (±0.5)	2.8 (±0.4)	-0.3 (±0.3)	*
Men	55-74	Born in Sweden	3.3 (±0.9)	3.1 (±0.6)	0.2 (±0.6)	
Men	16-74	Born in Sweden	3.3 (±0.5)	3.5 (±0.3)	-0.2 (±0.3)	
Men	20-64	Born in Sweden	3.4 (±0.5)	3.7 (±0.4)	-0.3 (±0.3)	
Women	16-24	Born in Sweden	5.2 (±2.2)	5.7 (±1.4)	-0.4 (±1.6)	
Women	25-54	Born in Sweden	2.3 (±0.5)	2.7 (±0.4)	-0.3 (±0.3)	
Women	55-74	Born in Sweden	3.2 (±0.9)	2.8 (±0.6)	0.3 (±0.6)	
Women	16-74	Born in Sweden	2.8 (±0.5)	3.1 (±0.3)	-0.2 (±0.3)	
Women	20-64	Born in Sweden	2.9 (±0.5)	3.1 (±0.3)	-0.2 (±0.3)	

Table B2.19. Unemployment rate according to SAEAR. Foreign born, aged 16-74. December 2015. Percent.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	
Total	16-24	Foreign born	28.8 (±9.0)	20.3 (±5.3)	8.5 (±7.3)	*
Total	25-54	Foreign born	15.6 (±1.8)	15.3 (±1.3)	0.4 (±1.3)	
Total	55-74	Foreign born	12.6 (±3.3)	11.5 (±2.2)	1.2 (±2.4)	
Total	16-74	Foreign born	16.0 (±1.6)	14.9 (±1.1)	1.0 (±1.1)	
Total	20-64	Foreign born	16.3 (±1.6)	15.3 (±1.1)	1.0 (±1.2)	
Men	16-24	Foreign born	29.6 (±10.9)	22.1 (±7.1)	7.5 (±8.3)	
Men	25-54	Foreign born	16.3 (±2.7)	16.0 (±1.9)	0.4 (±1.9)	
Men	55-74	Foreign born	16.9 (±5.3)	13.8 (±3.5)	3.1 (±4.0)	
Men	16-74	Foreign born	17.5 (±2.4)	16.0 (±1.6)	1.4 (±1.7)	
Men	20-64	Foreign born	17.8 (±2.4)	16.4 (±1.7)	1.4 (±1.7)	
Women	16-24	Foreign born	27.5 (±15.8)	17.9 (±7.9)	9.6 (±13.7)	
Women	25-54	Foreign born	14.9 (±2.7)	14.6 (±1.9)	0.3 (±2.0)	
Women	55-74	Foreign born	8.4 (±4.1)	9.0 (±2.9)	-0.6 (±2.9)	
Women	16-74	Foreign born	14.4 (±2.3)	13.8 (±1.6)	0.6 (±1.7)	
Women	20-64	Foreign born	14.7 (±2.4)	14.1 (±1.6)	0.6 (±1.8)	

Table B2.20. Unemployment rate according to SAEAR by level of education. Total aged 16-74. December 2015. Percent.

Sex	Level of education	Estimate response set	Estimate sample set	Bias
Total	Primary and lower secondary edu.	15.6 (±2.1)	14.0 (±1.3)	1.6 (±1.7)
Total	Upper secondary education	5.3 (±0.6)	5.0 (±0.4)	0.3 (±0.4)
Total	Post secondary education	3.4 (±0.5)	3.3 (±0.4)	0.1 (±0.3)
Men	Primary and lower secondary edu.	14.0 (±2.5)	12.6 (±1.6)	1.4 (±1.9)
Men	Upper secondary education	5.1 (±0.8)	5.0 (±0.5)	0.1 (±0.6)
Men	Post secondary education	4.3 (±0.9)	4.0 (±0.6)	0.3 (±0.6)
Women	Primary and lower secondary edu.	18.4 (±4.0)	16.3 (±2.3)	2.2 (±3.2)
Women	Upper secondary education	5.4 (±1.0)	4.9 (±0.6)	0.5 (±0.7)
Women	Post secondary education	2.6 (±0.6)	2.7 (±0.5)	-0.2 (±0.4)

Table B2.21. Not in the labour force according to SAEAR. Total aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias	Relative bias
Total	16-24	580,000 (±19,000)	549,000 (±14,000)	31,000 (±14,000) *	5.7 (±2.5) *
Total	25-34	207,000 (±18,000)	242,000 (±13,000)	-36,000 (±12,000) *	-14.8 (±5.0) *
Total	35-44	105,000 (±13,000)	145,000 (±11,000)	-39,000 (±7,000) *	-27.3 (±5.2) *
Total	45-54	126,000 (±13,000)	157,000 (±11,000)	-31,000 (±8,000) *	-19.6 (±5.2) *
Total	55-64	256,000 (±17,000)	258,000 (±13,000)	-2,000 (±11,000)	-0.8 (±4.3)
Total	65-74	905,000 (±19,000)	889,000 (±17,000)	16,000 (±8,000) *	1.8 (±0.9) *
Total	16-74	2,180,000 (±32,000)	2,241,000 (±24,000)	-61,000 (±21,000) *	-2.7 (±0.9) *
Total	20-64	932,000 (±30,000)	1,017,000 (±23,000)	-85,000 (±20,000) *	-8.4 (±1.9) *

Table B2.22. Not in the labour force according to SAEAR by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Men	16-24	299,000 (±13,000)	287,000 (±10,000)	12,000 (±9,000)	*	4.2 (±3.2)	*
Men	25-34	90,000 (±12,000)	112,000 (±9,000)	-21,000 (±7,000)	*	-19.3 (±6.8)	*
Men	35-44	44,000 (±8,000)	67,000 (±7,000)	-23,000 (±4,000)	*	-34.6 (±7.2)	*
Men	45-54	53,000 (±9,000)	74,000 (±7,000)	-22,000 (±5,000)	*	-29.1 (±6.9)	*
Men	55-64	110,000 (±12,000)	118,000 (±9,000)	-8,000 (±7,000)	*	-6.9 (±6.3)	*
Men	65-74	417,000 (±15,000)	409,000 (±14,000)	8,000 (±6,000)	*	2.1 (±1.6)	*
Men	16-74	1,012,000 (±26,000)	1,066,000 (±21,000)	-54,000 (±16,000)	*	-5.1 (±1.5)	*
Men	20-64	416,000 (±22,000)	480,000 (±17,000)	-64,000 (±14,000)	*	-13.4 (±2.9)	*
Women	16-24	282,000 (±14,000)	263,000 (±10,000)	19,000 (±10,000)	*	7.3 (±4.0)	*
Women	25-34	116,000 (±14,000)	131,000 (±10,000)	-14,000 (±10,000)	*	-10.9 (±7.4)	*
Women	35-44	61,000 (±10,000)	77,000 (±8,000)	-16,000 (±6,000)	*	-20.8 (±7.6)	*
Women	45-54	74,000 (±10,000)	83,000 (±8,000)	-9,000 (±7,000)	*	-11.1 (±7.9)	*
Women	55-64	147,000 (±13,000)	141,000 (±10,000)	6,000 (±9,000)		4.3 (±6.1)	
Women	65-74	488,000 (±12,000)	480,000 (±11,000)	7,000 (±4,000)	*	1.6 (±0.9)	*
Women	16-74	1,168,000 (±27,000)	1,175,000 (±20,000)	-7,000 (±17,000)		-0.6 (±1.5)	
Women	20-64	516,000 (±24,000)	537,000 (±18,000)	-21,000 (±17,000)	*	-3.9 (±3.1)	*

Table B2.23. Not in the labour force according to SAEAR. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Born in Sweden	476,000 (±19,000)	457,000 (±14,000)	19,000 (±14,000)	*	4.1 (±3.0)	*
Total	25-54	Born in Sweden	269,000 (±18,000)	319,000 (±14,000)	-50,000 (±11,000)	*	-15.8 (±3.7)	*
Total	55-74	Born in Sweden	960,000 (±26,000)	941,000 (±22,000)	19,000 (±14,000)	*	2.0 (±1.5)	*
Total	16-74	Born in Sweden	1,704,000 (±33,000)	1,717,000 (±25,000)	-13,000 (±21,000)		-0.8 (±1.2)	
Total	20-64	Born in Sweden	646,000 (±27,000)	677,000 (±20,000)	-32,000 (±17,000)	*	-4.7 (±2.6)	*
Men	16-24	Born in Sweden	240,000 (±14,000)	237,000 (±10,000)	3,000 (±9,000)		1.2 (±4.0)	
Men	25-54	Born in Sweden	124,000 (±13,000)	154,000 (±10,000)	-30,000 (±8,000)	*	-19.5 (±5.1)	*
Men	55-74	Born in Sweden	447,000 (±20,000)	437,000 (±17,000)	10,000 (±10,000)		2.3 (±2.4)	
Men	16-74	Born in Sweden	811,000 (±26,000)	829,000 (±21,000)	-17,000 (±15,000)	*	-2.1 (±1.9)	*
Men	20-64	Born in Sweden	304,000 (±19,000)	329,000 (±15,000)	-25,000 (±12,000)	*	-7.6 (±3.7)	*
Women	16-24	Born in Sweden	236,000 (±14,000)	220,000 (±10,000)	16,000 (±11,000)	*	7.2 (±4.8)	*
Women	25-54	Born in Sweden	144,000 (±14,000)	165,000 (±11,000)	-20,000 (±9,000)	*	-12.4 (±5.5)	*
Women	55-74	Born in Sweden	513,000 (±19,000)	504,000 (±16,000)	9,000 (±11,000)		1.7 (±2.1)	
Women	16-74	Born in Sweden	893,000 (±26,000)	889,000 (±20,000)	4,000 (±17,000)		0.4 (±1.9)	
Women	20-64	Born in Sweden	342,000 (±21,000)	349,000 (±15,000)	-7,000 (±14,000)		-1.9 (±4.0)	

Table B2.24. Not in the labour force according to SAEAR. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Foreign born	104,000 (±12,000)	92,000 (±8,000)	12,000 (±9,000)	*	13.6 (±10.3)	*
Total	25-54	Foreign born	169,000 (±17,000)	225,000 (±13,000)	-56,000 (±11,000)	*	-24.7 (±5.1)	*
Total	55-74	Foreign born	202,000 (±20,000)	207,000 (±16,000)	-5,000 (±12,000)		-2.4 (±5.9)	
Total	16-74	Foreign born	475,000 (±25,000)	523,000 (±19,000)	-48,000 (±17,000)	*	-9.2 (±3.3)	*
Total	20-64	Foreign born	286,000 (±21,000)	340,000 (±16,000)	-53,000 (±14,000)	*	-15.7 (±4.2)	*
Men	16-24	Foreign born	58,000 (±9,000)	49,000 (±6,000)	9,000 (±7,000)	*	18.4 (±14.5)	*
Men	25-54	Foreign born	62,000 (±11,000)	99,000 (±9,000)	-36,000 (±6,000)	*	-36.8 (±7.0)	*
Men	55-74	Foreign born	80,000 (±14,000)	90,000 (±11,000)	-10,000 (±8,000)	*	-11.0 (±9.1)	*
Men	16-74	Foreign born	201,000 (±19,000)	238,000 (±15,000)	-37,000 (±12,000)	*	-15.6 (±5.1)	*
Men	20-64	Foreign born	113,000 (±14,000)	152,000 (±11,000)	-39,000 (±9,000)	*	-25.9 (±6.1)	*
Women	16-24	Foreign born	46,000 (±9,000)	43,000 (±6,000)	3,000 (±7,000)		8.0 (±16.3)	
Women	25-54	Foreign born	107,000 (±14,000)	126,000 (±10,000)	-19,000 (±10,000)	*	-15.2 (±7.7)	*
Women	55-74	Foreign born	122,000 (±16,000)	117,000 (±12,000)	5,000 (±10,000)		4.2 (±8.6)	
Women	16-74	Foreign born	275,000 (±22,000)	286,000 (±16,000)	-11,000 (±15,000)		-3.8 (±5.1)	
Women	20-64	Foreign born	174,000 (±18,000)	188,000 (±12,000)	-14,000 (±12,000)	*	-7.5 (±6.6)	*

Table B2.25. Not in the labour force according to SAEAR by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	Primary and lower secondary edu.	641,000 (±31,000)	706,000 (±26,000)	-66,000 (±18,000)	*	-9.3 (±2.6)	*
Total	Upper secondary education	809,000 (±36,000)	835,000 (±29,000)	-26,000 (±21,000)	*	-3.1 (±2.5)	*
Total	Post secondary education	581,000 (±33,000)	528,000 (±25,000)	53,000 (±21,000)	*	10.1 (±4.1)	*
Men	Primary and lower secondary edu.	294,000 (±21,000)	342,000 (±18,000)	-49,000 (±11,000)	*	-14.2 (±3.4)	*
Men	Upper secondary education	378,000 (±25,000)	393,000 (±20,000)	-15,000 (±15,000)	*	-3.8 (±3.7)	*
Men	Post secondary education	259,000 (±23,000)	239,000 (±17,000)	20,000 (±15,000)	*	8.5 (±6.2)	*
Women	Primary and lower secondary edu.	347,000 (±24,000)	364,000 (±19,000)	-17,000 (±14,000)	*	-4.7 (±3.9)	*
Women	Upper secondary education	431,000 (±26,000)	441,000 (±21,000)	-11,000 (±16,000)		-2.5 (±3.6)	
Women	Post secondary education	321,000 (±25,000)	288,000 (±19,000)	33,000 (±16,000)	*	11.4 (±5.7)	*

Table B2.26. Labour force participation rate according to SAEAR. Total aged 16-74. December 2015. Percent.

Sex	Age	Estimate response set	Estimate sample set	Bias	
Total	16-24	46.0 (±1.8)	48.9 (±1.3)	-2.9 (±1.3)	*
Total	25-34	84.1 (±1.4)	81.4 (±1.0)	2.7 (±0.9)	*
Total	35-44	91.7 (±1.0)	88.5 (±0.8)	3.1 (±0.6)	*
Total	45-54	90.3 (±1.0)	88.0 (±0.8)	2.4 (±0.6)	*
Total	55-64	77.5 (±1.5)	77.3 (±1.2)	0.2 (±1.0)	
Total	65-74	17.8 (±1.7)	19.3 (±1.6)	-1.4 (±0.7)	*
Total	16-74	69.7 (±0.4)	68.8 (±0.3)	0.9 (±0.3)	*
Total	20-64	83.5 (±0.5)	82.0 (±0.4)	1.5 (±0.3)	*

Table B2.27. Labour force participation rate according to SAEAR by sex. 16-74 years. December 2015. Percent.

Sex	Age	Estimate response set	Estimate sample set	Bias	
Men	16-24	46.2 (±2.4)	48.4 (±1.7)	-2.2 (±1.7)	*
Men	25-34	86.5 (±1.8)	83.3 (±1.4)	3.2 (±1.1)	*
Men	35-44	93.1 (±1.3)	89.5 (±1.2)	3.6 (±0.6)	*
Men	45-54	92.1 (±1.3)	88.8 (±1.1)	3.3 (±0.7)	*
Men	55-64	80.8 (±2.1)	79.4 (±1.6)	1.4 (±1.3)	*
Men	65-74	23.0 (±2.8)	24.6 (±2.5)	-1.5 (±1.2)	*
Men	16-74	72.2 (±0.7)	70.7 (±0.6)	1.5 (±0.4)	*
Men	20-64	85.5 (±0.8)	83.3 (±0.6)	2.2 (±0.5)	*
Women	16-24	45.7 (±2.7)	49.4 (±1.8)	-3.7 (±2.0)	*
Women	25-34	81.6 (±2.2)	79.4 (±1.5)	2.2 (±1.5)	*
Women	35-44	90.1 (±1.6)	87.5 (±1.3)	2.6 (±0.9)	*
Women	45-54	88.5 (±1.6)	87.1 (±1.2)	1.4 (±1.0)	*
Women	55-64	74.2 (±2.3)	75.3 (±1.7)	-1.1 (±1.5)	
Women	65-74	12.8 (±2.2)	14.1 (±2.0)	-1.3 (±0.8)	*
Women	16-74	67.0 (±0.8)	66.8 (±0.6)	0.2 (±0.5)	
Women	20-64	81.5 (±0.9)	80.7 (±0.6)	0.7 (±0.6)	*

Table B2.28. Labour force participation rate according to SAEAR. Born in Sweden, aged 16-74. December 2015. Percent.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	
Total	16-24	Born in Sweden	47.7 (±2.0)	50.4 (±1.4)	-2.8 (±1.4)	*
Total	25-54	Born in Sweden	90.9 (±0.6)	89.2 (±0.5)	1.7 (±0.4)	*
Total	55-74	Born in Sweden	48.9 (±1.2)	49.8 (±1.1)	-0.8 (±0.7)	*
Total	16-74	Born in Sweden	70.4 (±0.6)	70.2 (±0.4)	0.2 (±0.4)	
Total	20-64	Born in Sweden	85.5 (±0.6)	84.8 (±0.4)	0.7 (±0.4)	*
Men	16-24	Born in Sweden	47.6 (±2.7)	49.6 (±1.9)	-2.0 (±1.9)	*
Men	25-54	Born in Sweden	91.9 (±0.8)	89.9 (±0.7)	2.0 (±0.5)	*
Men	55-74	Born in Sweden	53.1 (±1.9)	53.6 (±1.6)	-0.5 (±0.9)	
Men	16-74	Born in Sweden	72.5 (±0.8)	71.9 (±0.7)	0.7 (±0.5)	*
Men	20-64	Born in Sweden	86.7 (±0.8)	85.6 (±0.6)	1.1 (±0.5)	*
Women	16-24	Born in Sweden	47.7 (±3.0)	51.3 (±2.0)	-3.6 (±2.2)	*
Women	25-54	Born in Sweden	89.9 (±1.0)	88.5 (±0.7)	1.4 (±0.6)	*
Women	55-74	Born in Sweden	44.6 (±1.8)	45.9 (±1.5)	-1.3 (±1.0)	*
Women	16-74	Born in Sweden	68.2 (±0.9)	68.4 (±0.7)	-0.2 (±0.6)	
Women	20-64	Born in Sweden	84.1 (±0.9)	83.9 (±0.7)	0.3 (±0.6)	

Table B2.29. Labour force participation rate according to SAEAR. Foreign born, aged 16-74. December 2015. Percent.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	
Total	16-24	Foreign born	36.8 (±5.4)	39.5 (±3.9)	-2.7 (±3.8)	
Total	25-54	Foreign born	81.1 (±1.9)	75.1 (±1.4)	6.0 (±1.2)	*
Total	55-74	Foreign born	44.1 (±3.9)	43.6 (±3.0)	0.5 (±2.5)	
Total	16-74	Foreign born	66.6 (±1.8)	63.2 (±1.3)	3.4 (±1.2)	*
Total	20-64	Foreign born	76.4 (±1.7)	72.0 (±1.2)	4.4 (±1.2)	*
Men	16-24	Foreign born	39.7 (±7.0)	41.3 (±5.2)	-1.7 (±4.7)	
Men	25-54	Foreign born	85.5 (±2.5)	77.6 (±2.0)	7.9 (±1.5)	*
Men	55-74	Foreign born	50.0 (±6.0)	47.6 (±4.5)	2.4 (±4.0)	
Men	16-74	Foreign born	70.8 (±2.5)	65.9 (±1.9)	5.0 (±1.7)	*
Men	20-64	Foreign born	80.9 (±2.3)	74.6 (±1.8)	6.4 (±1.5)	*
Women	16-24	Foreign born	32.7 (±8.6)	37.2 (±5.8)	-4.5 (±6.3)	
Women	25-54	Foreign born	77.1 (±2.8)	72.8 (±2.1)	4.3 (±1.9)	*
Women	55-74	Foreign born	39.4 (±5.0)	40.1 (±4.0)	-0.7 (±3.0)	
Women	16-74	Foreign born	62.7 (±2.6)	60.7 (±1.9)	2.0 (±1.7)	*
Women	20-64	Foreign born	72.2 (±2.6)	69.5 (±1.8)	2.6 (±1.8)	*

Table B2.30. Labour force participation rate according to SAEAR by level of education. Total aged 16-74. December 2015. Percent.

Sex	Level of education	Estimate response set	Estimate sample set	Bias	
Total	Primary and lower secondary edu.	45.1 (±1.9)	46.2 (±1.4)	-1.1 (±1.3)	
Total	Upper secondary education	73.0 (±1.0)	73.7 (±0.8)	-0.8 (±0.7)	*
Total	Post secondary education	79.6 (±1.0)	78.8 (±0.9)	0.8 (±0.5)	*
Men	Primary and lower secondary edu.	53.3 (±2.6)	52.3 (±1.9)	1.0 (±1.8)	
Men	Upper secondary education	76.8 (±1.3)	76.8 (±1.0)	0.0 (±0.8)	
Men	Post secondary education	79.7 (±1.6)	78.5 (±1.4)	1.2 (±0.8)	*
Women	Primary and lower secondary edu.	35.5 (±2.7)	38.7 (±2.0)	-3.2 (±1.9)	*
Women	Upper secondary education	68.4 (±1.6)	70.2 (±1.2)	-1.9 (±1.1)	*
Women	Post secondary education	79.5 (±1.4)	79.0 (±1.2)	0.4 (±0.7)	

Table B2.31. Employees according to RAKS. Total aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	830,000 (±18,000)	818,000 (±13,000)	12,000 (±12,000)		1.5 (±1.5)	
Total	25-34	1,035,000 (±20,000)	1,008,000 (±14,000)	28,000 (±14,000)	*	2.7 (±1.3)	*
Total	35-44	967,000 (±19,000)	942,000 (±15,000)	25,000 (±12,000)	*	2.7 (±1.3)	*
Total	45-54	942,000 (±20,000)	924,000 (±16,000)	18,000 (±13,000)	*	1.9 (±1.4)	*
Total	55-64	708,000 (±20,000)	706,000 (±16,000)	2,000 (±12,000)		0.3 (±1.8)	
Total	65-74	229,000 (±22,000)	226,000 (±19,000)	3,000 (±11,000)		1.3 (±4.9)	
Total	16-74	4,711,000 (±45,000)	4,623,000 (±35,000)	88,000 (±29,000)	*	1.9 (±0.6)	*
Total	20-64	4,197,000 (±40,000)	4,118,000 (±30,000)	80,000 (±26,000)	*	1.9 (±0.6)	*

Table B2.32. Employees according to RAKS by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Men	16-24	418,000 (±13,000)	412,000 (±9,000)	7,000 (±9,000)		1.6 (±2.1)	
Men	25-34	530,000 (±14,000)	509,000 (±11,000)	21,000 (±9,000)	*	4.1 (±1.8)	*
Men	35-44	485,000 (±14,000)	466,000 (±11,000)	18,000 (±9,000)	*	3.9 (±1.9)	*
Men	45-54	453,000 (±15,000)	439,000 (±12,000)	13,000 (±9,000)	*	3.0 (±2.2)	*
Men	55-64	335,000 (±15,000)	330,000 (±12,000)	5,000 (±9,000)		1.4 (±2.7)	
Men	65-74	119,000 (±16,000)	112,000 (±13,000)	7,000 (±9,000)		6.3 (±7.7)	
Men	16-74	2,341,000 (±35,000)	2,270,000 (±27,000)	71,000 (±22,000)	*	3.1 (±1.0)	*
Men	20-64	2,081,000 (±30,000)	2,020,000 (±23,000)	61,000 (±19,000)	*	3.0 (±0.9)	*
Women	16-24	412,000 (±13,000)	407,000 (±9,000)	5,000 (±9,000)		1.3 (±2.2)	
Women	25-34	505,000 (±14,000)	499,000 (±10,000)	7,000 (±10,000)		1.4 (±2.0)	
Women	35-44	482,000 (±13,000)	475,000 (±10,000)	7,000 (±9,000)		1.5 (±1.8)	
Women	45-54	489,000 (±13,000)	484,000 (±10,000)	5,000 (±9,000)		1.0 (±1.8)	
Women	55-64	372,000 (±14,000)	375,000 (±11,000)	-3,000 (±9,000)		-0.8 (±2.4)	
Women	65-74	110,000 (±15,000)	114,000 (±13,000)	-4,000 (±7,000)		-3.6 (±6.2)	
Women	16-74	2,371,000 (±32,000)	2,354,000 (±25,000)	17,000 (±21,000)		0.7 (±0.9)	
Women	20-64	2,116,000 (±28,000)	2,097,000 (±21,000)	19,000 (±19,000)	*	0.9 (±0.9)	*

Table B2.33. Employees according to RAKS. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Born in Sweden	720,000 (±19,000)	717,000 (±14,000)	4,000 (±14,000)		0.5 (±1.9)	
Total	25-54	Born in Sweden	2,328,000 (±33,000)	2,291,000 (±25,000)	37,000 (±21,000)	*	1.6 (±0.9)	*
Total	55-74	Born in Sweden	797,000 (±28,000)	796,000 (±23,000)	1,000 (±16,000)		0.1 (±2.0)	
Total	16-74	Born in Sweden	3,845,000 (±42,000)	3,803,000 (±33,000)	41,000 (±25,000)	*	1.1 (±0.7)	*
Total	20-64	Born in Sweden	3,392,000 (±37,000)	3,354,000 (±29,000)	38,000 (±23,000)	*	1.1 (±0.7)	*
Men	16-24	Born in Sweden	356,000 (±14,000)	354,000 (±10,000)	1,000 (±10,000)		0.4 (±2.7)	
Men	25-54	Born in Sweden	1,164,000 (±27,000)	1,132,000 (±20,000)	33,000 (±18,000)	*	2.9 (±1.6)	*
Men	55-74	Born in Sweden	391,000 (±21,000)	380,000 (±17,000)	10,000 (±12,000)		2.7 (±3.1)	
Men	16-74	Born in Sweden	1,911,000 (±35,000)	1,867,000 (±27,000)	44,000 (±22,000)	*	2.4 (±1.2)	*
Men	20-64	Born in Sweden	1,681,000 (±31,000)	1,645,000 (±24,000)	37,000 (±20,000)	*	2.2 (±1.2)	*
Women	16-24	Born in Sweden	365,000 (±14,000)	362,000 (±10,000)	2,000 (±10,000)		0.6 (±2.9)	
Women	25-54	Born in Sweden	1,163,000 (±25,000)	1,159,000 (±18,000)	4,000 (±17,000)		0.4 (±1.5)	
Women	55-74	Born in Sweden	406,000 (±20,000)	416,000 (±17,000)	-9,000 (±11,000)		-2.3 (±2.7)	
Women	16-74	Born in Sweden	1,934,000 (±33,000)	1,937,000 (±25,000)	-3,000 (±21,000)		-0.1 (±1.1)	
Women	20-64	Born in Sweden	1,711,000 (±29,000)	1,709,000 (±22,000)	2,000 (±20,000)		0.1 (±1.1)	

Table B2.34. Employees according to RAKS. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Foreign born	110,000 (±13,000)	102,000 (±9,000)	8,000 (±10,000)		8.2 (±9.6)	
Total	25-54	Foreign born	617,000 (±25,000)	583,000 (±18,000)	34,000 (±18,000)	*	5.8 (±3.1)	*
Total	55-74	Foreign born	140,000 (±14,000)	136,000 (±11,000)	4,000 (±9,000)		3.0 (±7.0)	
Total	16-74	Foreign born	867,000 (±27,000)	820,000 (±20,000)	46,000 (±19,000)	*	5.7 (±2.3)	*
Total	20-64	Foreign born	805,000 (±27,000)	764,000 (±20,000)	41,000 (±19,000)	*	5.4 (±2.5)	*
Men	16-24	Foreign born	63,000 (±10,000)	57,000 (±7,000)	5,000 (±7,000)		9.1 (±12.8)	
Men	25-54	Foreign born	303,000 (±20,000)	283,000 (±14,000)	20,000 (±15,000)	*	7.1 (±5.2)	*
Men	55-74	Foreign born	64,000 (±10,000)	63,000 (±8,000)	2,000 (±7,000)		2.6 (±10.7)	
Men	16-74	Foreign born	430,000 (±23,000)	403,000 (±16,000)	27,000 (±17,000)	*	6.6 (±4.1)	*
Men	20-64	Foreign born	400,000 (±23,000)	376,000 (±16,000)	24,000 (±16,000)	*	6.5 (±4.4)	*
Women	16-24	Foreign born	47,000 (±9,000)	44,000 (±6,000)	3,000 (±7,000)		7.1 (±16.2)	
Women	25-54	Foreign born	314,000 (±20,000)	299,000 (±14,000)	14,000 (±15,000)		4.7 (±4.9)	
Women	55-74	Foreign born	76,000 (±11,000)	73,000 (±8,000)	2,000 (±7,000)		3.3 (±9.7)	
Women	16-74	Foreign born	437,000 (±24,000)	417,000 (±17,000)	20,000 (±17,000)	*	4.7 (±4.0)	*
Women	20-64	Foreign born	405,000 (±23,000)	388,000 (±16,000)	17,000 (±16,000)	*	4.4 (±4.2)	*

Table B2.35. Employees according to RAKS by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	Primary and lower secondary edu.	595,000 (±28,000)	665,000 (±22,000)	-70,000 (±16,000)	*	-10.5 (±2.5)	*
Total	Upper secondary education	1,967,000 (±46,000)	2,107,000 (±35,000)	-140,000 (±29,000)	*	-6.6 (±1.4)	*
Total	Post secondary education	2,062,000 (±45,000)	1,767,000 (±33,000)	295,000 (±30,000)	*	16.7 (±1.7)	*
Men	Primary and lower secondary edu.	334,000 (±21,000)	369,000 (±17,000)	-36,000 (±12,000)	*	-9.7 (±3.4)	*
Men	Upper secondary education	1,074,000 (±34,000)	1,106,000 (±26,000)	-32,000 (±22,000)	*	-2.9 (±1.9)	*
Men	Post secondary education	882,000 (±32,000)	744,000 (±23,000)	137,000 (±21,000)	*	18.5 (±2.9)	*
Women	Primary and lower secondary edu.	262,000 (±18,000)	296,000 (±15,000)	-34,000 (±11,000)	*	-11.5 (±3.7)	*
Women	Upper secondary education	893,000 (±32,000)	1,000,000 (±25,000)	-108,000 (±20,000)	*	-10.8 (±2.0)	*
Women	Post secondary education	1,180,000 (±33,000)	1,023,000 (±25,000)	158,000 (±22,000)	*	15.4 (±2.2)	*

Table B2.36. Students according to the Register on participation in education. Total aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	662,000 (±20,000)	597,000 (±14,000)	65,000 (±14,000)	*	10.8 (±2.4)	*
Total	25-34	259,000 (±19,000)	232,000 (±13,000)	26,000 (±14,000)	*	11.4 (±6.3)	*
Total	35-44	121,000 (±14,000)	110,000 (±10,000)	11,000 (±10,000)	*	10.5 (±9.0)	*
Total	45-54	60,000 (±10,000)	57,000 (±7,000)	3,000 (±6,000)		4.9 (±11.2)	
Total	55-64	18,000 (±5,000)	18,000 (±4,000)	0 (±4,000)		2.2 (±20.2)	
Total	65-74	3,000 (±3,000)	5,000 (±3,000)	-2,000 .	*	-36.9 .	*
Total	16-74	1,123,000 (±32,000)	1,019,000 (±23,000)	104,000 (±23,000)	*	10.2 (±2.2)	*
Total	20-64	770,000 (±31,000)	675,000 (±21,000)	95,000 (±22,000)	*	14.1 (±3.3)	*

Table B2.37. Students according to the Register on participation in education by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Men	16-24	324,000 (±14,000)	296,000 (±10,000)	29,000 (±9,000)	*	9.6 (±3.2)	*
Men	25-34	110,000 (±13,000)	96,000 (±8,000)	14,000 (±10,000)	*	14.8 (±10.1)	*
Men	35-44	46,000 (±9,000)	40,000 (±6,000)	5,000 (±6,000)		13.4 (±16.1)	
Men	45-54	17,000 (±5,000)	15,000 (±4,000)	2,000 (±4,000)		13.7 (±25.9)	
Men	55-64	6,000 (±3,000)	7,000 (±3,000)	-1,000 (±2,000)		-9.2 (±30.9)	
Men	65-74	1,000 (±1,000)	2,000 (±2,000)	-1,000 .	*	-62.5 .	*
Men	16-74	503,000 (±21,000)	455,000 (±15,000)	48,000 (±15,000)	*	10.6 (±3.3)	*
Men	20-64	323,000 (±20,000)	277,000 (±14,000)	45,000 (±15,000)	*	16.4 (±5.3)	*
Women	16-24	337,000 (±14,000)	301,000 (±10,000)	36,000 (±10,000)	*	12.0 (±3.5)	*
Women	25-34	149,000 (±15,000)	137,000 (±10,000)	12,000 (±11,000)	*	9.0 (±8.1)	*
Women	35-44	76,000 (±11,000)	69,000 (±8,000)	6,000 (±8,000)		8.8 (±10.9)	
Women	45-54	43,000 (±8,000)	43,000 (±6,000)	1,000 (±5,000)		1.9 (±12.2)	
Women	55-64	12,000 (±4,000)	11,000 (±3,000)	1,000 (±3,000)		9.0 (±26.7)	
Women	65-74	2,000 (±2,000)	3,000 (±3,000)	-1,000 .	*	-22.5 (±9.9)	*
Women	16-74	620,000 (±25,000)	564,000 (±17,000)	56,000 (±18,000)	*	9.9 (±3.1)	*
Women	20-64	448,000 (±24,000)	398,000 (±16,000)	50,000 (±17,000)	*	12.6 (±4.4)	*

Table B2.38. Students according to the Register on participation in education. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Born in Sweden	545,000 (±20,000)	498,000 (±14,000)	46,000 (±14,000)	*	9.3 (±2.9)	*
Total	25-54	Born in Sweden	251,000 (±19,000)	232,000 (±13,000)	19,000 (±13,000)	*	8.0 (±5.7)	*
Total	55-74	Born in Sweden	12,000 (±4,000)	12,000 (±4,000)	0 (±2,000)		-0.7 (±17.2)	
Total	16-74	Born in Sweden	807,000 (±27,000)	742,000 (±19,000)	65,000 (±19,000)	*	8.8 (±2.6)	*
Total	20-64	Born in Sweden	516,000 (±25,000)	453,000 (±17,000)	63,000 (±18,000)	*	13.9 (±4.0)	*
Men	16-24	Born in Sweden	260,000 (±14,000)	242,000 (±10,000)	18,000 (±10,000)	*	7.3 (±4.0)	*
Men	25-54	Born in Sweden	97,000 (±12,000)	85,000 (±8,000)	12,000 (±8,000)	*	13.9 (±9.9)	*
Men	55-74	Born in Sweden	3,000 (±2,000)	3,000 (±2,000)	0 .	*	-15.1 .	*
Men	16-74	Born in Sweden	359,000 (±18,000)	330,000 (±13,000)	29,000 (±13,000)	*	8.8 (±3.8)	*
Men	20-64	Born in Sweden	214,000 (±16,000)	182,000 (±11,000)	32,000 (±12,000)	*	17.8 (±6.5)	*
Women	16-24	Born in Sweden	285,000 (±15,000)	256,000 (±10,000)	29,000 (±11,000)	*	11.2 (±4.3)	*
Women	25-54	Born in Sweden	154,000 (±15,000)	147,000 (±11,000)	7,000 (±10,000)		4.6 (±6.9)	
Women	55-74	Born in Sweden	10,000 (±4,000)	9,000 (±3,000)	0 (±2,000)		3.9 (±23.6)	
Women	16-74	Born in Sweden	448,000 (±21,000)	412,000 (±15,000)	36,000 (±15,000)	*	8.7 (±3.6)	*
Women	20-64	Born in Sweden	302,000 (±20,000)	271,000 (±13,000)	31,000 (±14,000)	*	11.3 (±5.2)	*

Table B2.39. Students according to the Register on participation in education. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Foreign born	117,000 (±13,000)	99,000 (±8,000)	18,000 (±10,000)	*	18.4 (±10.1)	*
Total	25-54	Foreign born	190,000 (±18,000)	168,000 (±12,000)	22,000 (±14,000)	*	13.2 (±8.2)	*
Total	55-74	Foreign born	9,000 (±4,000)	11,000 (±3,000)	-1,000 (±2,000)		-13.0 (±23.0)	
Total	16-74	Foreign born	316,000 (±21,000)	277,000 (±14,000)	39,000 (±16,000)	*	14.1 (±5.7)	*
Total	20-64	Foreign born	255,000 (±21,000)	222,000 (±14,000)	32,000 (±15,000)	*	14.6 (±7.0)	*
Men	16-24	Foreign born	64,000 (±10,000)	54,000 (±6,000)	11,000 (±7,000)	*	20.1 (±13.6)	*
Men	25-54	Foreign born	76,000 (±12,000)	66,000 (±8,000)	10,000 (±9,000)	*	14.8 (±14.1)	*
Men	55-74	Foreign born	4,000 (±3,000)	5,000 (±2,000)	-1,000 (±1,000)		-23.7 (±26.8)	
Men	16-74	Foreign born	144,000 (±15,000)	125,000 (±10,000)	19,000 (±11,000)	*	15.4 (±9.2)	*
Men	20-64	Foreign born	109,000 (±14,000)	96,000 (±9,000)	13,000 (±11,000)	*	13.6 (±11.2)	*
Women	16-24	Foreign born	53,000 (±10,000)	45,000 (±6,000)	7,000 (±8,000)		16.4 (±17.1)	
Women	25-54	Foreign born	114,000 (±15,000)	102,000 (±10,000)	12,000 (±11,000)	*	12.2 (±11.0)	*
Women	55-74	Foreign born	5,000 (±3,000)	5,000 (±3,000)	0 (±2,000)		-1.5 (±38.8)	
Women	16-74	Foreign born	172,000 (±17,000)	152,000 (±11,000)	20,000 (±13,000)	*	13.0 (±8.7)	*
Women	20-64	Foreign born	146,000 (±17,000)	127,000 (±11,000)	19,000 (±13,000)	*	15.4 (±10.1)	*

Table B2.40. Students according to the Register on participation in education by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	Primary and lower secondary edu.	318,000 (±18,000)	311,000 (±13,000)	7,000 (±13,000)		2.3 (±4.1)	
Total	Upper secondary education	275,000 (±21,000)	258,000 (±14,000)	16,000 (±15,000)	*	6.4 (±5.9)	*
Total	Post secondary education	405,000 (±25,000)	329,000 (±17,000)	76,000 (±19,000)	*	23.1 (±5.9)	*
Men	Primary and lower secondary edu.	152,000 (±12,000)	151,000 (±9,000)	1,000 (±8,000)		1.0 (±5.5)	
Men	Upper secondary education	132,000 (±14,000)	115,000 (±9,000)	17,000 (±10,000)	*	14.6 (±8.8)	*
Men	Post secondary education	153,000 (±16,000)	125,000 (±10,000)	28,000 (±12,000)	*	22.3 (±9.7)	*
Women	Primary and lower secondary edu.	165,000 (±13,000)	160,000 (±9,000)	6,000 (±10,000)		3.6 (±6.1)	
Women	Upper secondary education	143,000 (±16,000)	143,000 (±11,000)	0 (±11,000)		-0.3 (±8.0)	
Women	Post secondary education	253,000 (±20,000)	204,000 (±13,000)	48,000 (±15,000)	*	23.5 (±7.6)	*

Table B2.41. Income group 1 according to the Register on income and taxation. Total aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	672,000 (±19,000)	635,000 (±13,000)	37,000 (±13,000)	*	5.8 (±2.1)	*
Total	25-34	286,000 (±20,000)	315,000 (±14,000)	-30,000 (±14,000)	*	-9.4 (±4.4)	*
Total	35-44	182,000 (±16,000)	221,000 (±13,000)	-39,000 (±10,000)	*	-17.7 (±4.6)	*
Total	45-54	185,000 (±15,000)	216,000 (±12,000)	-30,000 (±10,000)	*	-14.0 (±4.6)	*
Total	55-64	292,000 (±18,000)	296,000 (±14,000)	-4,000 (±12,000)		-1.3 (±3.9)	
Total	65-74	938,000 (±18,000)	927,000 (±16,000)	11,000 (±7,000)	*	1.2 (±0.8)	*
Total	16-74	2,556,000 (±33,000)	2,611,000 (±25,000)	-55,000 (±22,000)	*	-2.1 (±0.8)	*
Total	20-64	1,235,000 (±32,000)	1,310,000 (±24,000)	-75,000 (±21,000)	*	-5.7 (±1.6)	*

Table B2.42. Income group 1 according to the Register on income and taxation by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Men	16-24	360,000 (±13,000)	341,000 (±9,000)	19,000 (±9,000)	*	5.4 (±2.6)	*
Men	25-34	123,000 (±13,000)	142,000 (±10,000)	-18,000 (±9,000)	*	-12.8 (±6.4)	*
Men	35-44	86,000 (±11,000)	107,000 (±9,000)	-21,000 (±7,000)	*	-19.9 (±6.8)	*
Men	45-54	83,000 (±11,000)	102,000 (±8,000)	-19,000 (±6,000)	*	-19.0 (±6.4)	*
Men	55-64	138,000 (±13,000)	146,000 (±10,000)	-9,000 (±8,000)	*	-5.9 (±5.4)	*
Men	65-74	449,000 (±14,000)	449,000 (±12,000)	0 (±7,000)		-0.1 (±1.5)	
Men	16-74	1,238,000 (±27,000)	1,288,000 (±21,000)	-50,000 (±17,000)	*	-3.8 (±1.3)	*
Men	20-64	589,000 (±25,000)	642,000 (±19,000)	-53,000 (±16,000)	*	-8.2 (±2.5)	*
Women	16-24	312,000 (±14,000)	294,000 (±9,000)	18,000 (±10,000)	*	6.2 (±3.5)	*
Women	25-34	162,000 (±15,000)	174,000 (±11,000)	-11,000 (±11,000)	*	-6.6 (±6.3)	*
Women	35-44	96,000 (±12,000)	114,000 (±9,000)	-18,000 (±7,000)	*	-15.6 (±6.6)	*
Women	45-54	103,000 (±12,000)	113,000 (±9,000)	-11,000 (±8,000)	*	-9.5 (±6.8)	*
Women	55-64	155,000 (±13,000)	150,000 (±10,000)	5,000 (±9,000)		3.2 (±5.9)	
Women	65-74	490,000 (±12,000)	478,000 (±11,000)	12,000 (±4,000)	*	2.5 (±0.8)	*
Women	16-74	1,318,000 (±28,000)	1,323,000 (±21,000)	-5,000 (±18,000)		-0.4 (±1.4)	
Women	20-64	646,000 (±26,000)	668,000 (±19,000)	-22,000 (±18,000)	*	-3.3 (±2.7)	*

Table B2.43. Income group 1 according to the Register on income and taxation. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Born in Sweden	547,000 (±19,000)	527,000 (±13,000)	20,000 (±14,000)	*	3.8 (±2.6)	*
Total	25-54	Born in Sweden	368,000 (±21,000)	424,000 (±16,000)	-56,000 (±13,000)	*	-13.2 (±3.1)	*
Total	55-74	Born in Sweden	1,015,000 (±26,000)	1,000,000 (±22,000)	14,000 (±14,000)	*	1.4 (±1.4)	*
Total	16-74	Born in Sweden	1,930,000 (±34,000)	1,952,000 (±26,000)	-22,000 (±21,000)	*	-1.1 (±1.1)	*
Total	20-64	Born in Sweden	801,000 (±29,000)	839,000 (±22,000)	-38,000 (±19,000)	*	-4.5 (±2.2)	*
Men	16-24	Born in Sweden	289,000 (±14,000)	281,000 (±10,000)	7,000 (±9,000)		2.6 (±3.3)	
Men	25-54	Born in Sweden	166,000 (±14,000)	198,000 (±11,000)	-32,000 (±9,000)	*	-16.0 (±4.5)	*
Men	55-74	Born in Sweden	496,000 (±20,000)	493,000 (±17,000)	3,000 (±11,000)		0.6 (±2.1)	
Men	16-74	Born in Sweden	951,000 (±26,000)	972,000 (±21,000)	-21,000 (±16,000)	*	-2.2 (±1.6)	*
Men	20-64	Born in Sweden	391,000 (±21,000)	415,000 (±16,000)	-24,000 (±13,000)	*	-5.8 (±3.2)	*
Women	16-24	Born in Sweden	258,000 (±14,000)	246,000 (±10,000)	12,000 (±11,000)	*	5.0 (±4.3)	*
Women	25-54	Born in Sweden	202,000 (±16,000)	226,000 (±12,000)	-24,000 (±10,000)	*	-10.8 (±4.6)	*
Women	55-74	Born in Sweden	519,000 (±19,000)	508,000 (±16,000)	11,000 (±10,000)	*	2.3 (±2.1)	*
Women	16-74	Born in Sweden	979,000 (±27,000)	980,000 (±21,000)	-1,000 (±17,000)		-0.1 (±1.8)	
Women	20-64	Born in Sweden	410,000 (±22,000)	423,000 (±16,000)	-13,000 (±15,000)		-3.2 (±3.5)	

Table B2.44. Income group 1 according to the Register on income and taxation. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Foreign born	125,000 (±13,000)	108,000 (±9,000)	17,000 (±10,000)	*	15.6 (±9.5)	*
Total	25-54	Foreign born	285,000 (±20,000)	328,000 (±15,000)	-43,000 (±14,000)	*	-13.1 (±4.3)	*
Total	55-74	Foreign born	216,000 (±20,000)	223,000 (±16,000)	-7,000 (±12,000)		-3.1 (±5.6)	
Total	16-74	Foreign born	626,000 (±26,000)	659,000 (±19,000)	-33,000 (±18,000)	*	-5.0 (±2.8)	*
Total	20-64	Foreign born	434,000 (±23,000)	471,000 (±17,000)	-37,000 (±16,000)	*	-7.9 (±3.5)	*
Men	16-24	Foreign born	71,000 (±10,000)	60,000 (±7,000)	11,000 (±8,000)	*	18.5 (±13.0)	*
Men	25-54	Foreign born	126,000 (±15,000)	153,000 (±11,000)	-27,000 (±10,000)	*	-17.8 (±6.6)	*
Men	55-74	Foreign born	91,000 (±14,000)	103,000 (±12,000)	-12,000 (±8,000)	*	-11.8 (±8.2)	*
Men	16-74	Foreign born	287,000 (±22,000)	316,000 (±16,000)	-28,000 (±14,000)	*	-9.0 (±4.5)	*
Men	20-64	Foreign born	198,000 (±18,000)	227,000 (±13,000)	-28,000 (±12,000)	*	-12.6 (±5.4)	*
Women	16-24	Foreign born	54,000 (±10,000)	48,000 (±6,000)	6,000 (±8,000)		11.9 (±16.0)	
Women	25-54	Foreign born	159,000 (±17,000)	175,000 (±12,000)	-16,000 (±12,000)	*	-8.9 (±6.7)	*
Women	55-74	Foreign born	125,000 (±16,000)	120,000 (±13,000)	5,000 (±10,000)		4.3 (±8.6)	
Women	16-74	Foreign born	338,000 (±23,000)	343,000 (±17,000)	-5,000 (±16,000)		-1.4 (±4.7)	
Women	20-64	Foreign born	236,000 (±20,000)	245,000 (±14,000)	-9,000 (±14,000)		-3.5 (±5.8)	

Table B2.45. Income group 1 according to the Register on income and taxation by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	Primary and lower secondary edu.	775,000 (±34,000)	844,000 (±27,000)	-69,000 (±20,000)	*	-8.1 (±2.4)	*
Total	Upper secondary education	947,000 (±38,000)	979,000 (±30,000)	-32,000 (±23,000)	*	-3.2 (±2.3)	*
Total	Post secondary education	681,000 (±35,000)	613,000 (±26,000)	68,000 (±23,000)	*	11.1 (±3.8)	*
Men	Primary and lower secondary edu.	380,000 (±24,000)	428,000 (±20,000)	-48,000 (±13,000)	*	-11.2 (±3.1)	*
Men	Upper secondary education	464,000 (±27,000)	481,000 (±22,000)	-16,000 (±16,000)	*	-3.4 (±3.3)	*
Men	Post secondary education	314,000 (±24,000)	287,000 (±18,000)	27,000 (±16,000)	*	9.3 (±5.6)	*
Women	Primary and lower secondary edu.	395,000 (±25,000)	416,000 (±20,000)	-21,000 (±15,000)	*	-5.0 (±3.6)	*
Women	Upper secondary education	483,000 (±28,000)	498,000 (±22,000)	-15,000 (±17,000)		-3.0 (±3.4)	
Women	Post secondary education	367,000 (±26,000)	326,000 (±19,000)	41,000 (±17,000)	*	12.7 (±5.4)	*

Table B2.46. Income group 2 according to the Register on income and taxation. Total aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	333,000 (±19,000)	360,000 (±13,000)	-27,000 (±13,000)	*	-7.5 (±3.6)	*
Total	25-34	464,000 (±23,000)	477,000 (±17,000)	-13,000 (±16,000)		-2.8 (±3.4)	
Total	35-44	279,000 (±18,000)	298,000 (±14,000)	-19,000 (±12,000)	*	-6.4 (±3.9)	*
Total	45-54	229,000 (±17,000)	256,000 (±13,000)	-27,000 (±10,000)	*	-10.4 (±4.0)	*
Total	55-64	248,000 (±16,000)	260,000 (±13,000)	-12,000 (±9,000)	*	-4.6 (±3.6)	*
Total	65-74	109,000 (±15,000)	116,000 (±14,000)	-7,000 (±6,000)	*	-5.7 (±5.5)	*
Total	16-74	1,662,000 (±44,000)	1,767,000 (±34,000)	-105,000 (±28,000)	*	-5.9 (±1.6)	*
Total	20-64	1,516,000 (±41,000)	1,606,000 (±31,000)	-90,000 (±27,000)	*	-5.6 (±1.7)	*

Table B2.47. Income group 2 according to the Register on income and taxation by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Men	16-24	158,000 (±13,000)	174,000 (±9,000)	-16,000 (±8,000)	*	-9.3 (±4.8)	*
Men	25-34	239,000 (±16,000)	239,000 (±12,000)	0 (±11,000)		0.0 (±4.7)	
Men	35-44	138,000 (±13,000)	152,000 (±10,000)	-14,000 (±8,000)	*	-9.0 (±5.4)	*
Men	45-54	123,000 (±12,000)	135,000 (±10,000)	-12,000 (±8,000)	*	-9.1 (±5.7)	*
Men	55-64	138,000 (±12,000)	141,000 (±10,000)	-3,000 (±7,000)		-2.0 (±5.2)	
Men	65-74	63,000 (±12,000)	61,000 (±10,000)	2,000 (±6,000)		3.0 (±9.5)	
Men	16-74	859,000 (±32,000)	902,000 (±25,000)	-43,000 (±20,000)	*	-4.8 (±2.2)	*
Men	20-64	779,000 (±30,000)	820,000 (±23,000)	-42,000 (±19,000)	*	-5.1 (±2.3)	*
Women	16-24	175,000 (±14,000)	186,000 (±9,000)	-11,000 (±10,000)	*	-5.9 (±5.4)	*
Women	25-34	224,000 (±16,000)	238,000 (±12,000)	-13,000 (±12,000)	*	-5.6 (±4.9)	*
Women	35-44	141,000 (±13,000)	146,000 (±10,000)	-5,000 (±8,000)		-3.7 (±5.6)	
Women	45-54	107,000 (±11,000)	121,000 (±9,000)	-14,000 (±7,000)	*	-11.9 (±5.4)	*
Women	55-64	110,000 (±11,000)	119,000 (±9,000)	-9,000 (±6,000)	*	-7.8 (±5.0)	*
Women	65-74	46,000 (±10,000)	55,000 (±9,000)	-8,000 (±3,000)	*	-15.3 (±5.5)	*
Women	16-74	803,000 (±31,000)	865,000 (±24,000)	-62,000 (±20,000)	*	-7.1 (±2.3)	*
Women	20-64	737,000 (±29,000)	786,000 (±22,000)	-49,000 (±19,000)	*	-6.2 (±2.4)	*

Table B2.48. Income group 2 according to the Register on income and taxation. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Born in Sweden	298,000 (±18,000)	323,000 (±13,000)	-24,000 (±13,000)	*	-7.6 (±3.9)	*
Total	25-54	Born in Sweden	699,000 (±28,000)	755,000 (±22,000)	-56,000 (±17,000)	*	-7.5 (±2.3)	*
Total	55-74	Born in Sweden	298,000 (±20,000)	317,000 (±18,000)	-19,000 (±10,000)	*	-6.1 (±3.1)	*
Total	16-74	Born in Sweden	1,295,000 (±38,000)	1,395,000 (±30,000)	-100,000 (±23,000)	*	-7.2 (±1.7)	*
Total	20-64	Born in Sweden	1,160,000 (±35,000)	1,248,000 (±27,000)	-88,000 (±22,000)	*	-7.0 (±1.8)	*
Men	16-24	Born in Sweden	135,000 (±12,000)	153,000 (±9,000)	-17,000 (±8,000)	*	-11.4 (±5.1)	*
Men	25-54	Born in Sweden	361,000 (±21,000)	384,000 (±16,000)	-23,000 (±13,000)	*	-5.9 (±3.3)	*
Men	55-74	Born in Sweden	167,000 (±16,000)	171,000 (±13,000)	-4,000 (±8,000)		-2.4 (±4.9)	
Men	16-74	Born in Sweden	664,000 (±28,000)	708,000 (±23,000)	-44,000 (±17,000)	*	-6.3 (±2.4)	*
Men	20-64	Born in Sweden	589,000 (±26,000)	632,000 (±20,000)	-43,000 (±16,000)	*	-6.8 (±2.5)	*
Women	16-24	Born in Sweden	163,000 (±14,000)	170,000 (±9,000)	-7,000 (±10,000)		-4.1 (±5.9)	
Women	25-54	Born in Sweden	338,000 (±20,000)	371,000 (±16,000)	-33,000 (±12,000)	*	-9.0 (±3.4)	*
Women	55-74	Born in Sweden	131,000 (±13,000)	146,000 (±12,000)	-15,000 (±5,000)	*	-10.4 (±3.8)	*
Women	16-74	Born in Sweden	631,000 (±27,000)	687,000 (±22,000)	-56,000 (±17,000)	*	-8.1 (±2.4)	*
Women	20-64	Born in Sweden	571,000 (±25,000)	616,000 (±19,000)	-45,000 (±16,000)	*	-7.3 (±2.6)	*

Table B2.49. Income group 2 according to the Register on income and taxation. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias	Relative bias
Total	16-24	Foreign born	34,000 (±8,000)	37,000 (±6,000)	-3,000 (±6,000)	-7.2 (±15.9)
Total	25-54	Foreign born	273,000 (±21,000)	276,000 (±15,000)	-3,000 (±15,000)	-1.1 (±5.4)
Total	55-74	Foreign born	59,000 (±10,000)	59,000 (±8,000)	1,000 (±7,000)	1.1 (±11.2)
Total	16-74	Foreign born	367,000 (±24,000)	372,000 (±17,000)	-5,000 (±17,000)	-1.3 (±4.5)
Total	20-64	Foreign born	356,000 (±23,000)	359,000 (±16,000)	-2,000 (±16,000)	-0.7 (±4.6)
Men	16-24	Foreign born	22,000 (±7,000)	21,000 (±4,000)	1,000 (±5,000)	6.5 (±23.1)
Men	25-54	Foreign born	139,000 (±16,000)	142,000 (±11,000)	-3,000 (±11,000)	-2.3 (±7.8)
Men	55-74	Foreign born	33,000 (±8,000)	30,000 (±5,000)	3,000 (±5,000)	10.3 (±17.7)
Men	16-74	Foreign born	195,000 (±18,000)	194,000 (±13,000)	1,000 (±13,000)	0.6 (±6.7)
Men	20-64	Foreign born	190,000 (±18,000)	188,000 (±12,000)	1,000 (±13,000)	0.6 (±6.7)
Women	16-24	Foreign born	12,000 (±5,000)	16,000 (±4,000)	-4,000 (±3,000) *	-25.5 (±23.0) *
Women	25-54	Foreign born	134,000 (±15,000)	134,000 (±11,000)	0 (±11,000)	0.2 (±8.2)
Women	55-74	Foreign born	26,000 (±7,000)	29,000 (±5,000)	-2,000 (±4,000)	-8.6 (±13.9)
Women	16-74	Foreign born	172,000 (±17,000)	178,000 (±12,000)	-6,000 (±12,000)	-3.5 (±6.7)
Women	20-64	Foreign born	166,000 (±17,000)	170,000 (±12,000)	-4,000 (±12,000)	-2.2 (±7.0)

Table B2.50. Income group 2 according to the Register on income and taxation by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias	Relative bias
Total	Primary and lower secondary edu.	219,000 (±18,000)	272,000 (±16,000)	-53,000 (±10,000) *	-19.4 (±3.8) *
Total	Upper secondary education	835,000 (±34,000)	953,000 (±27,000)	-117,000 (±21,000) *	-12.3 (±2.2) *
Total	Post secondary education	591,000 (±30,000)	524,000 (±21,000)	68,000 (±21,000) *	12.9 (±4.0) *
Men	Primary and lower secondary edu.	134,000 (±14,000)	161,000 (±12,000)	-27,000 (±8,000) *	-16.5 (±5.0) *
Men	Upper secondary education	450,000 (±25,000)	501,000 (±20,000)	-51,000 (±15,000) *	-10.1 (±3.0) *
Men	Post secondary education	261,000 (±20,000)	227,000 (±14,000)	35,000 (±14,000) *	15.3 (±6.2) *
Women	Primary and lower secondary edu.	85,000 (±12,000)	111,000 (±10,000)	-26,000 (±6,000) *	-23.6 (±5.8) *
Women	Upper secondary education	385,000 (±23,000)	452,000 (±19,000)	-67,000 (±14,000) *	-14.7 (±3.1) *
Women	Post secondary education	330,000 (±22,000)	297,000 (±16,000)	33,000 (±15,000) *	11.1 (±5.2) *

Table B2.51. Income group 3 according to the Register on income and taxation. Total aged 16-74. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	70,000 (±10,000)	80,000 (±8,000)	-10,000 (±7,000)	*	-12.0 (±8.5)	*
Total	25-34	551,000 (±23,000)	508,000 (±16,000)	43,000 (±16,000)	*	8.5 (±3.2)	*
Total	35-44	799,000 (±21,000)	740,000 (±16,000)	58,000 (±13,000)	*	7.9 (±1.8)	*
Total	45-54	892,000 (±20,000)	835,000 (±16,000)	57,000 (±12,000)	*	6.8 (±1.5)	*
Total	55-64	599,000 (±20,000)	583,000 (±16,000)	16,000 (±12,000)	*	2.7 (±2.0)	*
Total	65-74	53,000 (±11,000)	58,000 (±10,000)	-5,000 (±4,000)	*	-8.2 (±6.9)	*
Total	16-74	2,964,000 (±39,000)	2,805,000 (±31,000)	160,000 (±24,000)	*	5.7 (±0.9)	*
Total	20-64	2,911,000 (±39,000)	2,746,000 (±30,000)	165,000 (±24,000)	*	6.0 (±0.9)	*

Table B2.52. Income group 3 according to the Register on income and taxation by sex. 16-74 years. December 2015. Number.

Sex	Age	Estimate response set	Estimate sample set	Bias		Relative bias	
Men	16-24	38,000 (±7,000)	40,000 (±5,000)	-2,000 (±5,000)		-6.0 (±11.3)	
Men	25-34	304,000 (±17,000)	286,000 (±12,000)	18,000 (±11,000)	*	6.4 (±4.0)	*
Men	35-44	417,000 (±15,000)	382,000 (±12,000)	35,000 (±10,000)	*	9.2 (±2.6)	*
Men	45-54	458,000 (±15,000)	426,000 (±12,000)	32,000 (±9,000)	*	7.4 (±2.1)	*
Men	55-64	296,000 (±14,000)	284,000 (±11,000)	11,000 (±9,000)	*	4.0 (±3.1)	*
Men	65-74	30,000 (±8,000)	32,000 (±8,000)	-1,000 (±4,000)		-4.2 (±11.4)	
Men	16-74	1,543,000 (±30,000)	1,450,000 (±24,000)	93,000 (±19,000)	*	6.4 (±1.3)	*
Men	20-64	1,512,000 (±30,000)	1,418,000 (±23,000)	94,000 (±19,000)	*	6.6 (±1.3)	*
Women	16-24	32,000 (±7,000)	39,000 (±5,000)	-7,000 (±5,000)	*	-18.1 (±13.1)	*
Women	25-34	247,000 (±16,000)	223,000 (±11,000)	25,000 (±12,000)	*	11.1 (±5.4)	*
Women	35-44	382,000 (±15,000)	359,000 (±12,000)	23,000 (±10,000)	*	6.5 (±2.7)	*
Women	45-54	434,000 (±14,000)	409,000 (±11,000)	25,000 (±9,000)	*	6.2 (±2.2)	*
Women	55-64	303,000 (±14,000)	299,000 (±11,000)	4,000 (±8,000)		1.5 (±2.8)	
Women	65-74	23,000 (±7,000)	27,000 (±7,000)	-3,000 (±2,000)	*	-12.9 (±7.2)	*
Women	16-74	1,422,000 (±29,000)	1,355,000 (±23,000)	67,000 (±18,000)	*	4.9 (±1.4)	*
Women	20-64	1,399,000 (±29,000)	1,328,000 (±22,000)	70,000 (±18,000)	*	5.3 (±1.4)	*

Table B2.53. Income group 3 according to the Register on income and taxation. Born in Sweden, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Born in Sweden	64,000 (±10,000)	72,000 (±7,000)	-9,000 (±6,000)	*	-11.9 (±8.9)	*
Total	25-54	Born in Sweden	1,903,000 (±33,000)	1,784,000 (±26,000)	119,000 (±21,000)	*	6.7 (±1.2)	*
Total	55-74	Born in Sweden	567,000 (±22,000)	557,000 (±18,000)	10,000 (±12,000)		1.8 (±2.2)	
Total	16-74	Born in Sweden	2,534,000 (±38,000)	2,413,000 (±30,000)	121,000 (±23,000)	*	5.0 (±1.0)	*
Total	20-64	Born in Sweden	2,487,000 (±37,000)	2,362,000 (±29,000)	124,000 (±23,000)	*	5.3 (±1.0)	*
Men	16-24	Born in Sweden	34,000 (±7,000)	37,000 (±5,000)	-3,000 (±4,000)		-7.1 (±11.5)	
Men	25-54	Born in Sweden	1,013,000 (±26,000)	949,000 (±20,000)	64,000 (±17,000)	*	6.8 (±1.8)	*
Men	55-74	Born in Sweden	291,000 (±16,000)	278,000 (±13,000)	12,000 (±9,000)	*	4.5 (±3.4)	*
Men	16-74	Born in Sweden	1,338,000 (±30,000)	1,264,000 (±24,000)	74,000 (±19,000)	*	5.8 (±1.5)	*
Men	20-64	Born in Sweden	1,310,000 (±30,000)	1,236,000 (±23,000)	74,000 (±19,000)	*	6.0 (±1.5)	*
Women	16-24	Born in Sweden	30,000 (±7,000)	36,000 (±5,000)	-6,000 (±5,000)	*	-16.9 (±13.9)	*
Women	25-54	Born in Sweden	890,000 (±25,000)	835,000 (±19,000)	55,000 (±17,000)	*	6.6 (±2.0)	*
Women	55-74	Born in Sweden	276,000 (±15,000)	279,000 (±13,000)	-2,000 (±8,000)		-0.8 (±3.0)	
Women	16-74	Born in Sweden	1,196,000 (±29,000)	1,149,000 (±23,000)	47,000 (±18,000)	*	4.1 (±1.6)	*
Women	20-64	Born in Sweden	1,177,000 (±29,000)	1,126,000 (±22,000)	51,000 (±18,000)	*	4.5 (±1.6)	*

Table B2.54. Income group 3 according to the Register on income and taxation. Foreign born, aged 16-74. December 2015. Number.

Sex	Age	Country of birth	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	16-24	Foreign born	6,000 (±4,000)	7,000 (±3,000)	-1,000 (±2,000)		-12.8 (±34.0)	
Total	25-54	Foreign born	339,000 (±22,000)	300,000 (±15,000)	39,000 (±16,000)	*	13.0 (±5.3)	*
Total	55-74	Foreign born	85,000 (±12,000)	84,000 (±9,000)	1,000 (±7,000)		1.2 (±8.8)	
Total	16-74	Foreign born	431,000 (±24,000)	392,000 (±17,000)	39,000 (±17,000)	*	10.0 (±4.3)	*
Total	20-64	Foreign born	424,000 (±24,000)	384,000 (±17,000)	40,000 (±17,000)	*	10.5 (±4.4)	*
Men	16-24	Foreign born	3,000 (±3,000)	3,000 (±2,000)	0 (±2,000)		7.6 (±58.4)	
Men	25-54	Foreign born	166,000 (±17,000)	145,000 (±11,000)	21,000 (±12,000)	*	14.4 (±8.5)	*
Men	55-74	Foreign born	35,000 (±8,000)	38,000 (±6,000)	-2,000 (±5,000)		-6.2 (±12.5)	
Men	16-74	Foreign born	205,000 (±18,000)	186,000 (±13,000)	19,000 (±13,000)	*	10.1 (±7.0)	*
Men	20-64	Foreign born	203,000 (±18,000)	182,000 (±13,000)	21,000 (±13,000)	*	11.3 (±7.2)	*
Women	16-24	Foreign born	3,000 (±2,000)	4,000 (±2,000)	-1,000 (±2,000)		-29.2 (±41.1)	
Women	25-54	Foreign born	173,000 (±16,000)	155,000 (±11,000)	18,000 (±12,000)	*	11.7 (±7.8)	*
Women	55-74	Foreign born	50,000 (±9,000)	47,000 (±7,000)	3,000 (±6,000)		7.1 (±12.6)	
Women	16-74	Foreign born	226,000 (±18,000)	205,000 (±13,000)	20,000 (±13,000)	*	9.9 (±6.4)	*
Women	20-64	Foreign born	222,000 (±18,000)	202,000 (±13,000)	20,000 (±13,000)	*	9.9 (±6.5)	*

Table B2.55. Income group 3 according to the Register on income and taxation by level of education. Total aged 16-74. December 2015. Number.

Sex	Level of education	Estimate response set	Estimate sample set	Bias		Relative bias	
Total	Primary and lower secondary edu.	172,000 (±16,000)	196,000 (±14,000)	-24,000 (±9,000)	*	-12.1 (±4.6)	*
Total	Upper secondary education	1,209,000 (±36,000)	1,246,000 (±29,000)	-36,000 (±22,000)	*	-2.9 (±1.8)	*
Total	Post secondary education	1,577,000 (±38,000)	1,355,000 (±29,000)	222,000 (±25,000)	*	16.4 (±1.9)	*
Men	Primary and lower secondary edu.	115,000 (±13,000)	129,000 (±11,000)	-14,000 (±7,000)	*	-11.1 (±5.7)	*
Men	Upper secondary education	717,000 (±28,000)	714,000 (±22,000)	3,000 (±18,000)		0.4 (±2.5)	
Men	Post secondary education	706,000 (±28,000)	601,000 (±21,000)	105,000 (±19,000)	*	17.5 (±3.1)	*
Women	Primary and lower secondary edu.	57,000 (±9,000)	67,000 (±8,000)	-9,000 (±5,000)	*	-14.1 (±7.7)	*
Women	Upper secondary education	493,000 (±24,000)	532,000 (±20,000)	-39,000 (±14,000)	*	-7.4 (±2.7)	*
Women	Post secondary education	871,000 (±29,000)	754,000 (±22,000)	116,000 (±19,000)	*	15.4 (±2.5)	*

Appendix 3 – Diagram over estimates of change for employed and unemployed persons

Diagram B3.1. Estimates of change for the number of employed and unemployed persons according to SAR. Total aged 20-64. January 2013 – December 2015. Number.

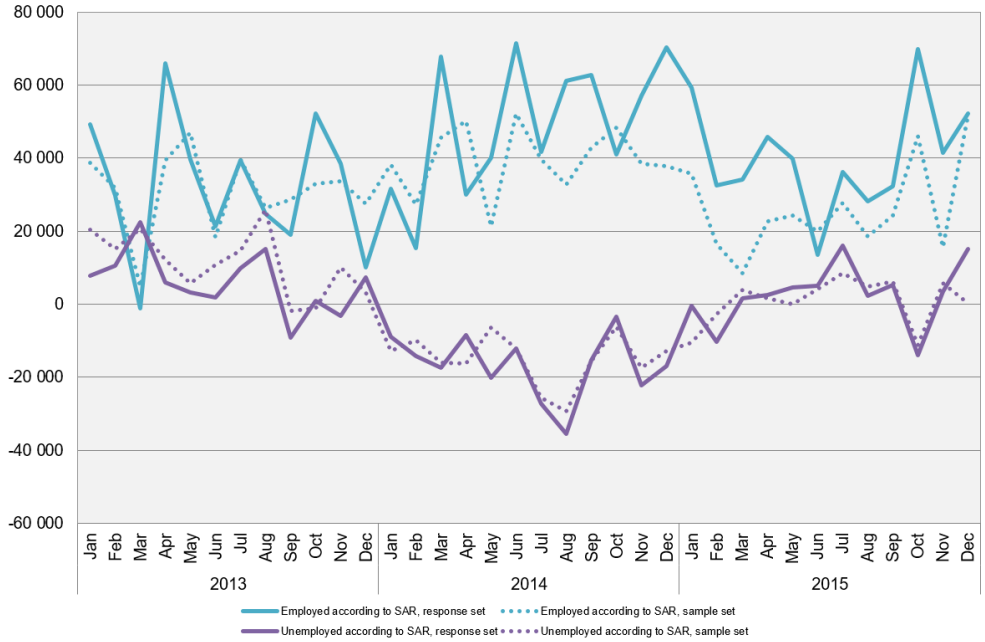


Diagram B3.2. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of employed persons according to SAR. Total aged 20-64. January 2013 – December 2015. Number.

Diagram B3.3. Estimates of change for the number of employed and unemployed persons according to SAR. Men aged 20-64. January 2013 – December 2015. Number

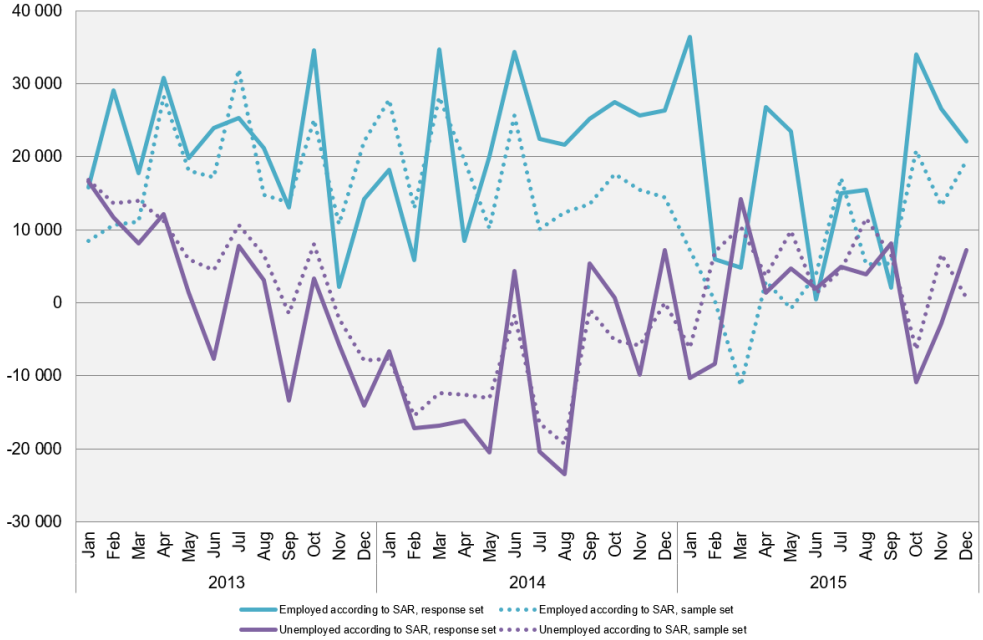


Diagram B3.4. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of employed persons according to SAR. Men aged 20-64. January 2013 – December 2015. Number.

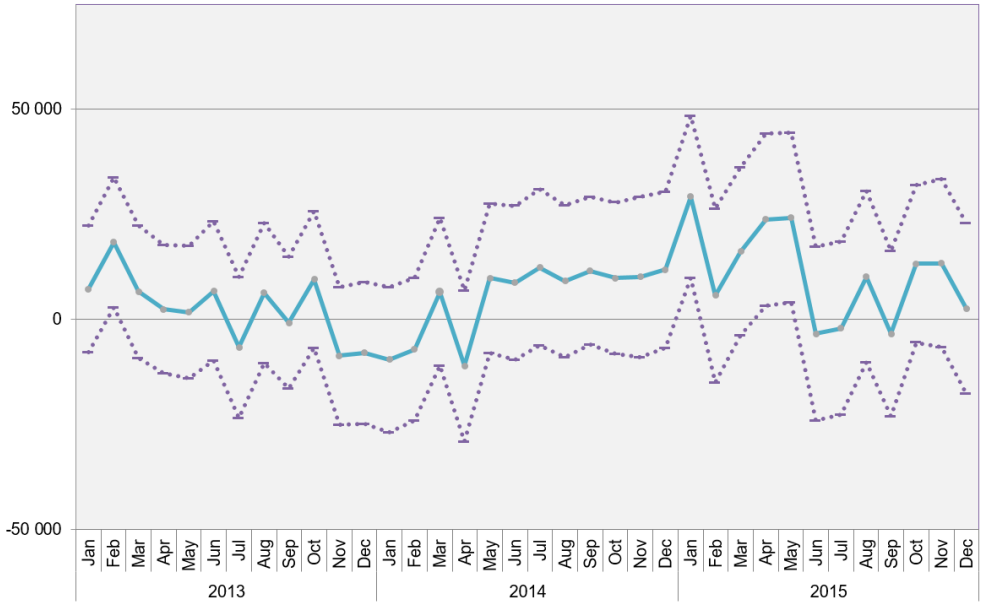


Diagram B3.5. Estimates of change for the number of employed and unemployed persons according to SAR. Women aged 20-64. January 2013 – December 2015. Number

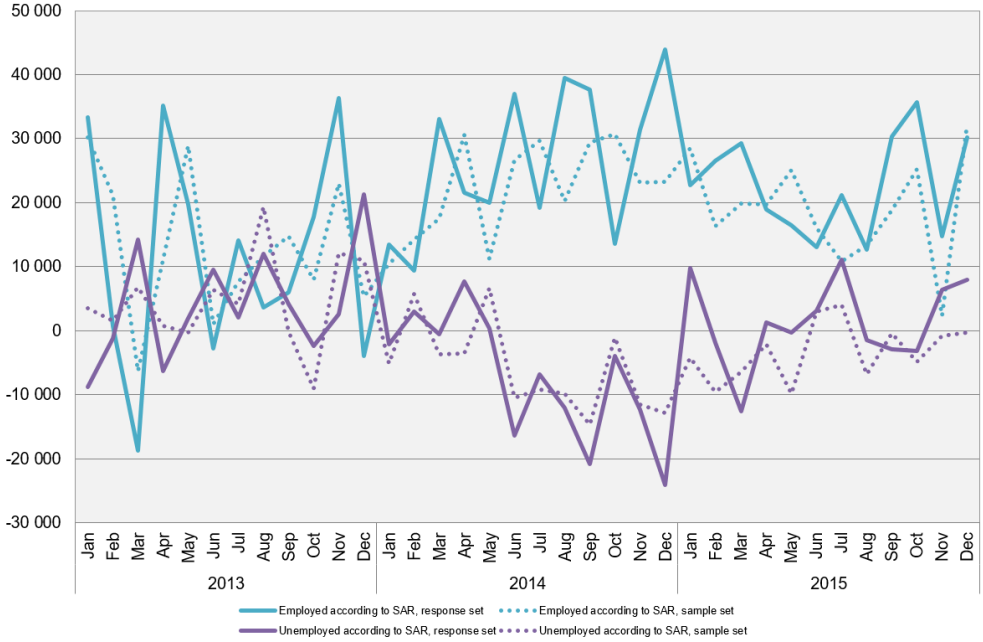


Diagram B3.6. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of employed persons according to SAR. Women aged 20-64. January 2013 – December 2015. Number.

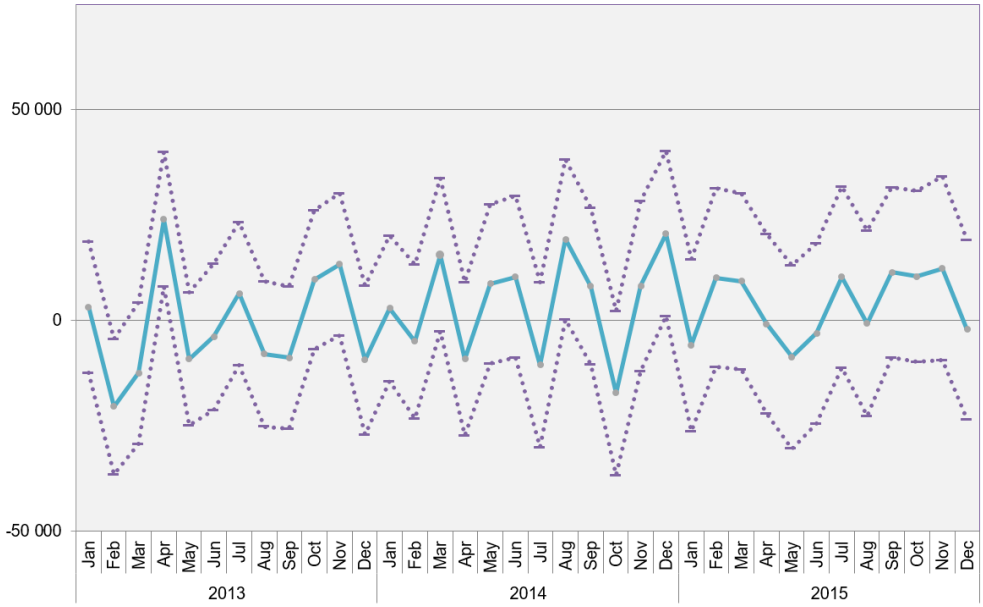


Diagram B3.7. Estimates of change for the number of employed and unemployed persons according to SAR. Born in Sweden, aged 16-74. January 2013 – December 2015. Number.

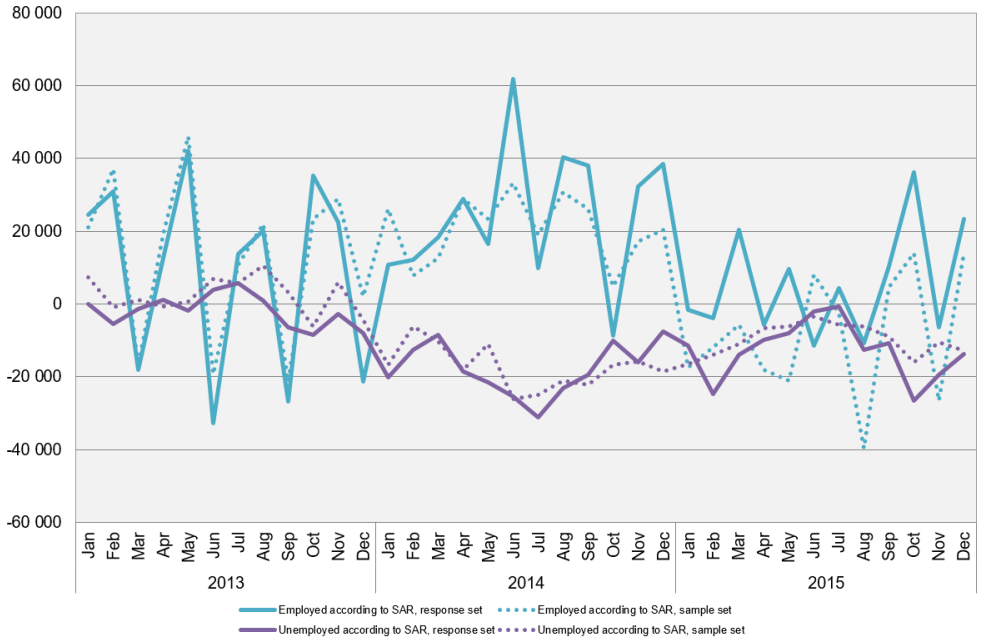


Diagram B3.8. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of employed persons according SAR. Born in Sweden, aged 16-74. January 2013 – December 2015. Number.

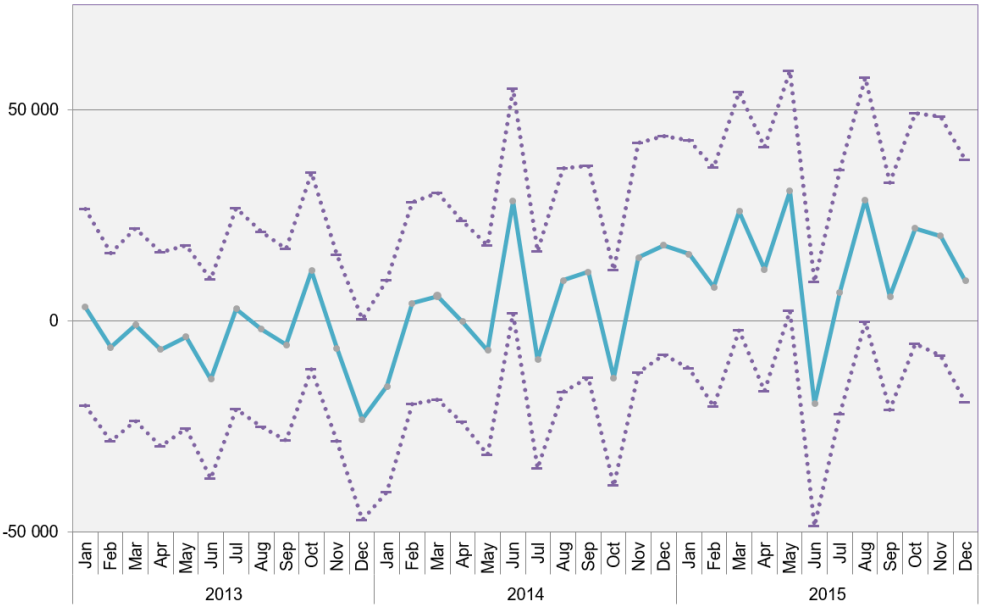


Diagram B3.9. Estimates of change estimates for the number of employed and unemployed persons according to SAR. Foreign born, aged 16-74. January 2013 – December 2015. Number

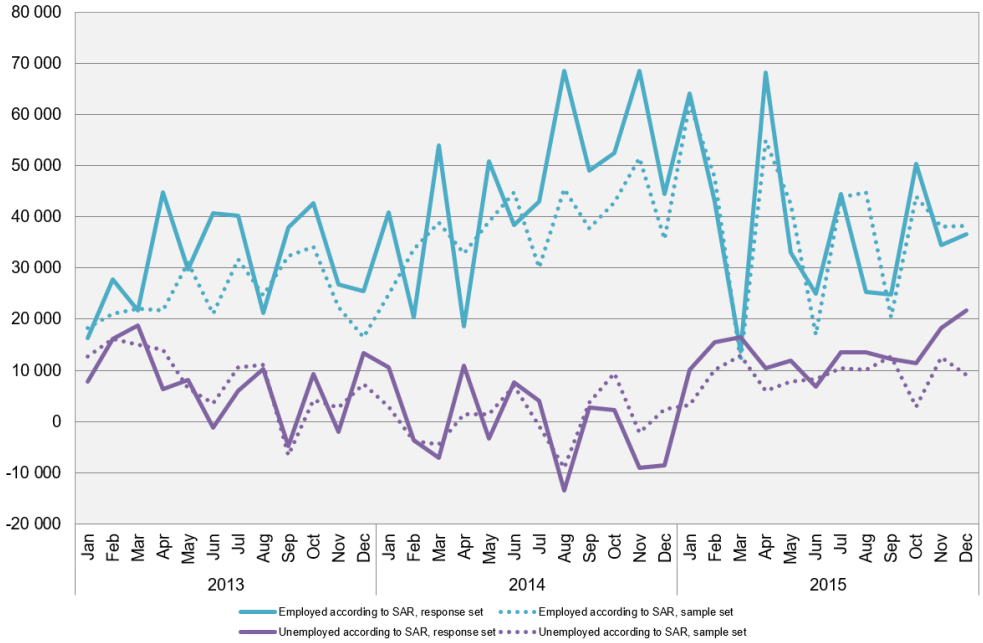
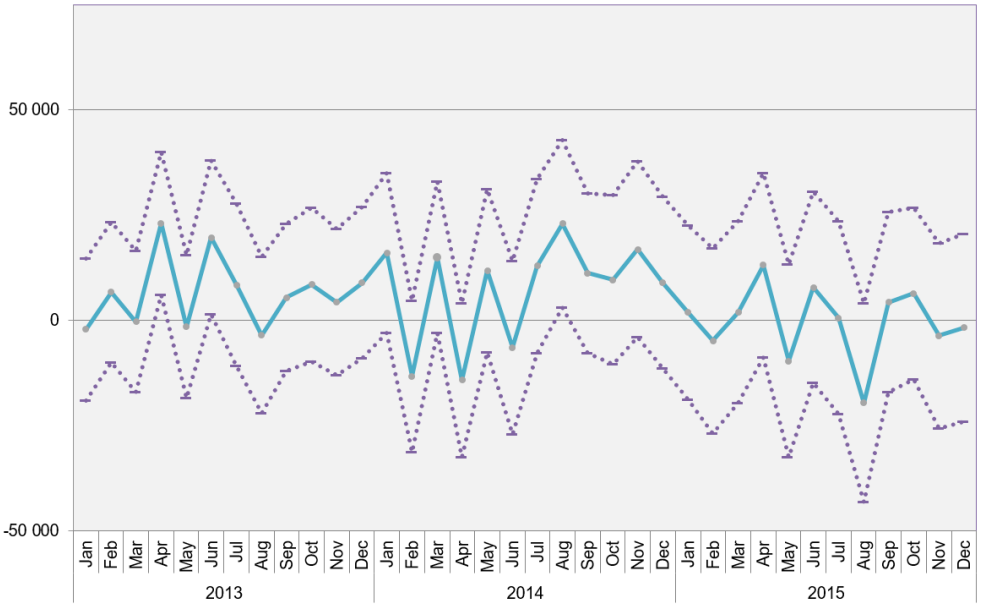


Diagram B3.10. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of employed persons according to SAR. Foreign born, aged 16-74. January 2013 – December 2015. Number.



Appendix 4 – Diagram over estimated bias for estimates of change of number of unemployed persons

Diagram B4.1. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Total aged 16-74. January 2013 – December 2015. Number.

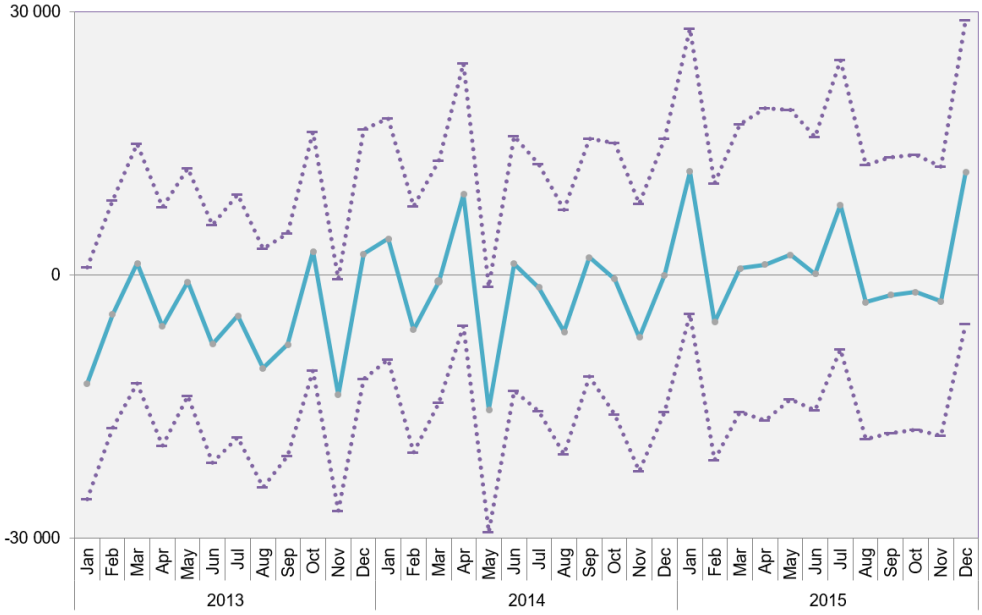


Diagram B4.2. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Men aged 16-74. January 2013 – December 2015. Number.

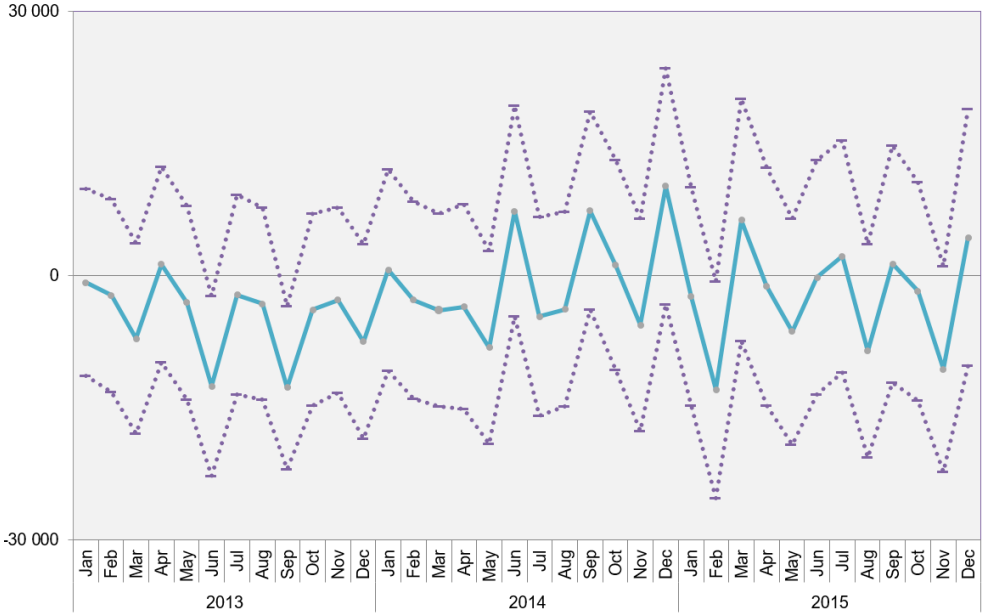


Diagram B4.3. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Women aged 16-74. January 2013 – December 2015. Number.

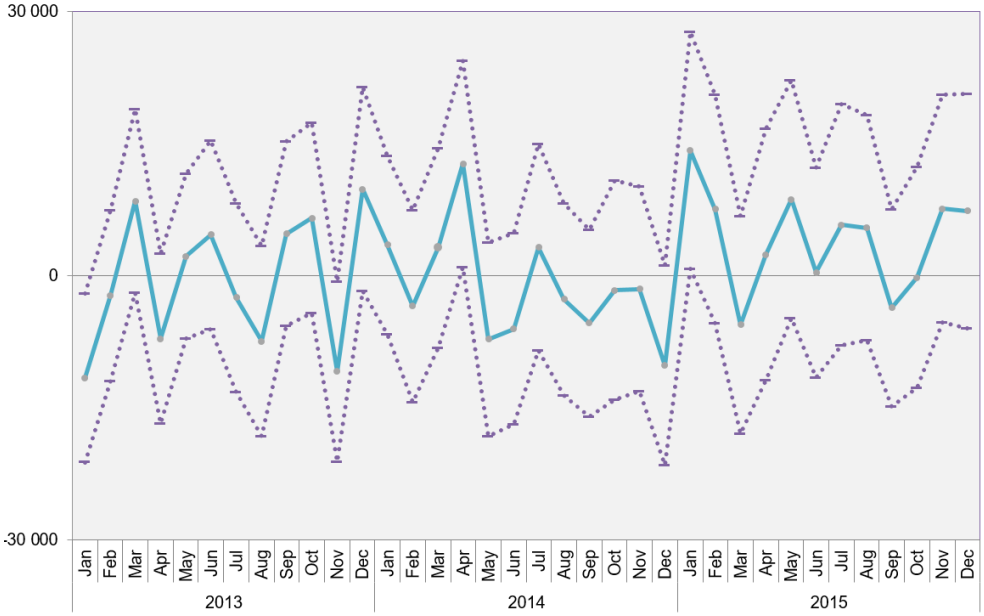


Diagram B4.4. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Total aged 20-64. January 2013 – December 2015. Number.

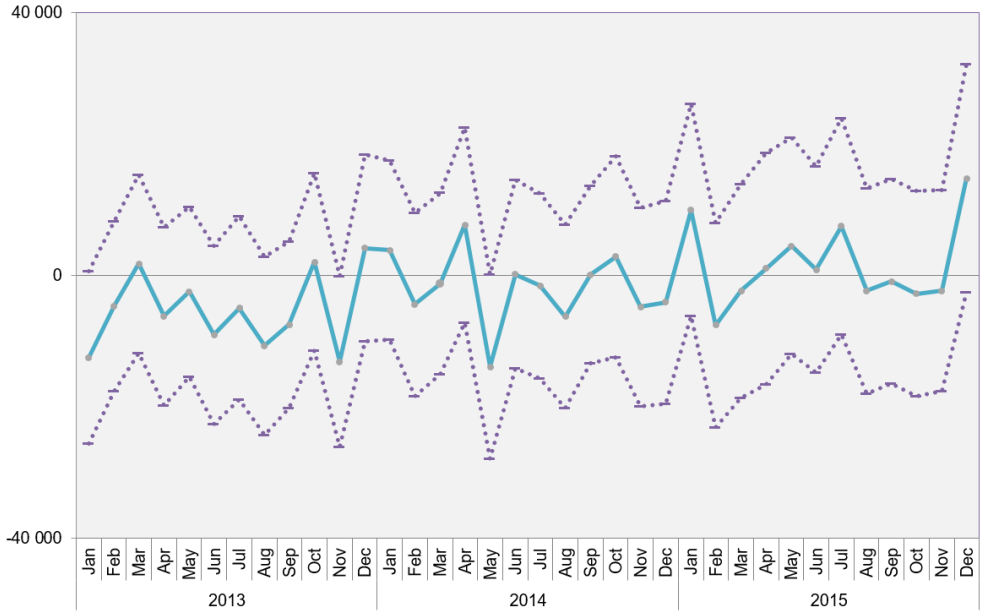


Diagram B4.5. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Men aged 20-64. January 2013 – December 2015. Number.

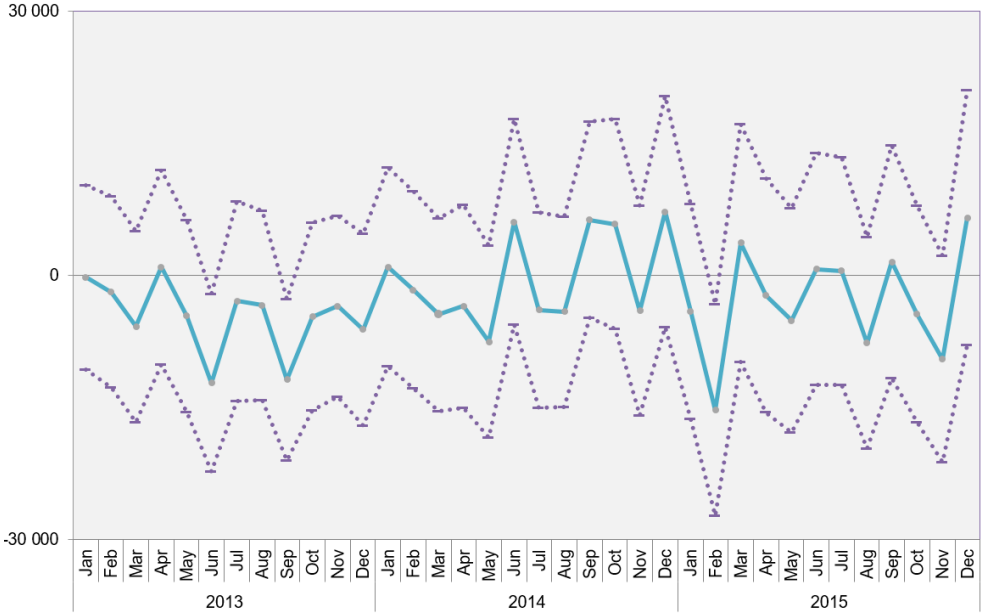


Diagram B4.6. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Women aged 20-64. January 2013 – December 2015. Number.

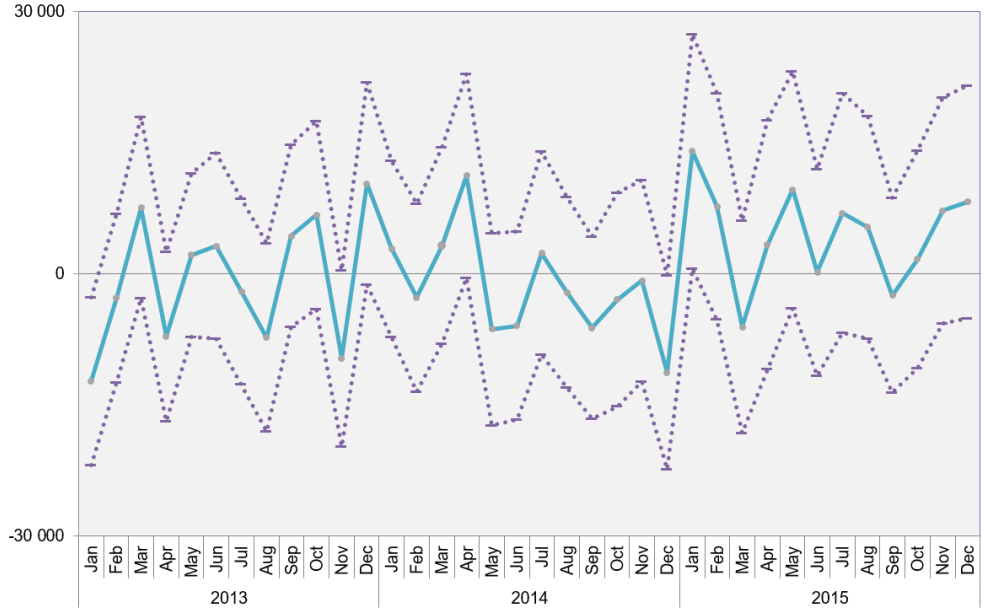


Diagram B4.7. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Born in Sweden, aged 16-74. January 2013 – December 2015. Number.

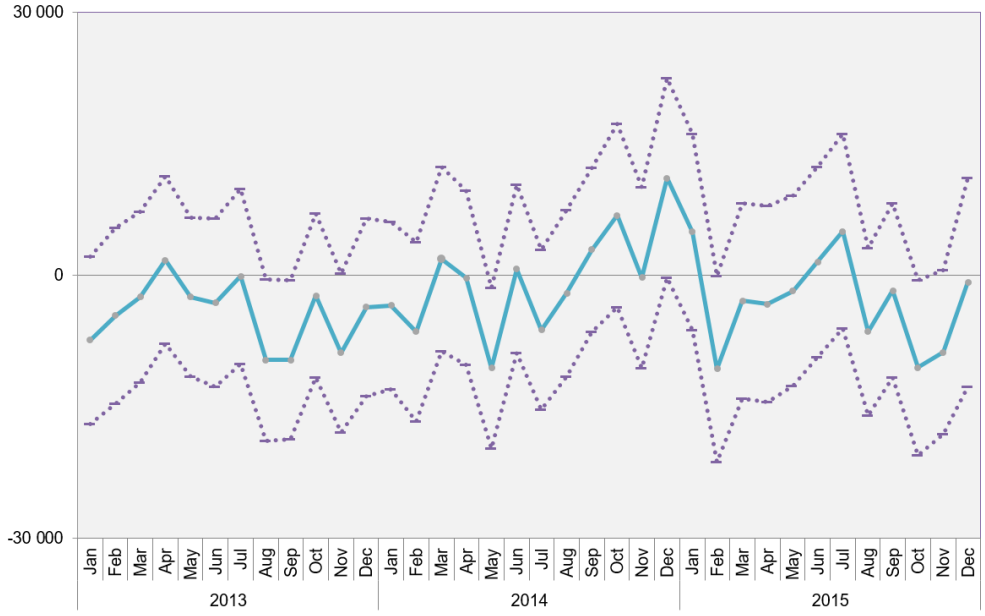


Diagram B4.8. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Foreign born, aged 16-74. January 2013 – December 2015. Number.

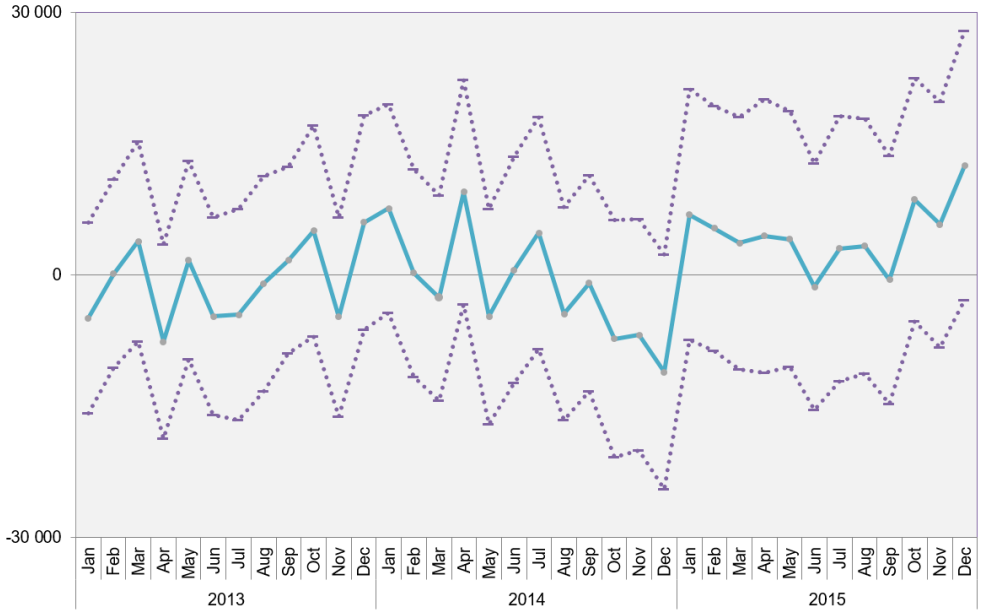


Diagram B4.9. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Primary and lower secondary education, aged 16-74. January 2013 – December 2015. Number.

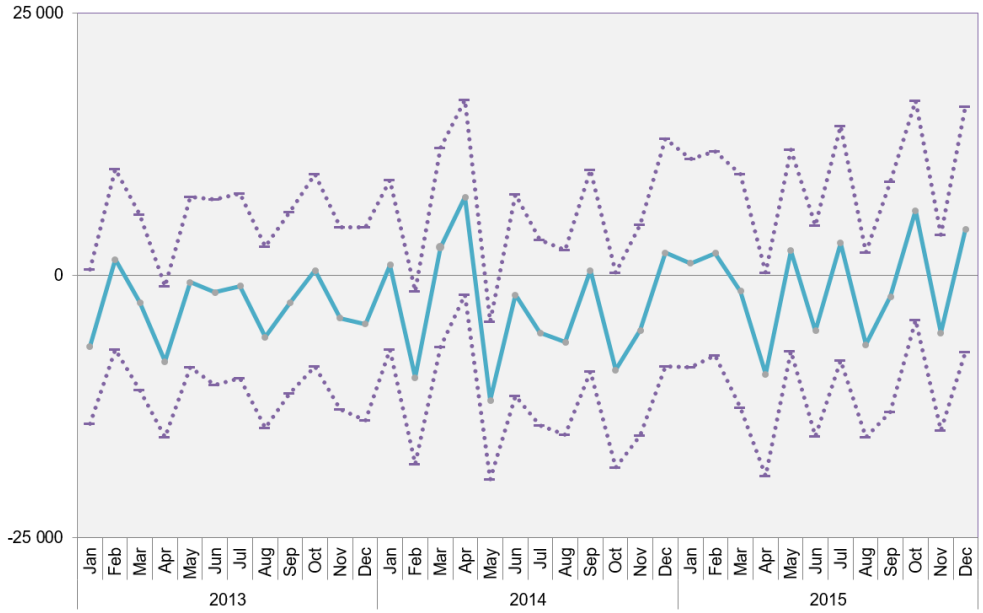


Diagram B4.10. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Upper secondary education, aged 16-74. January 2013 – December 2015. Number.

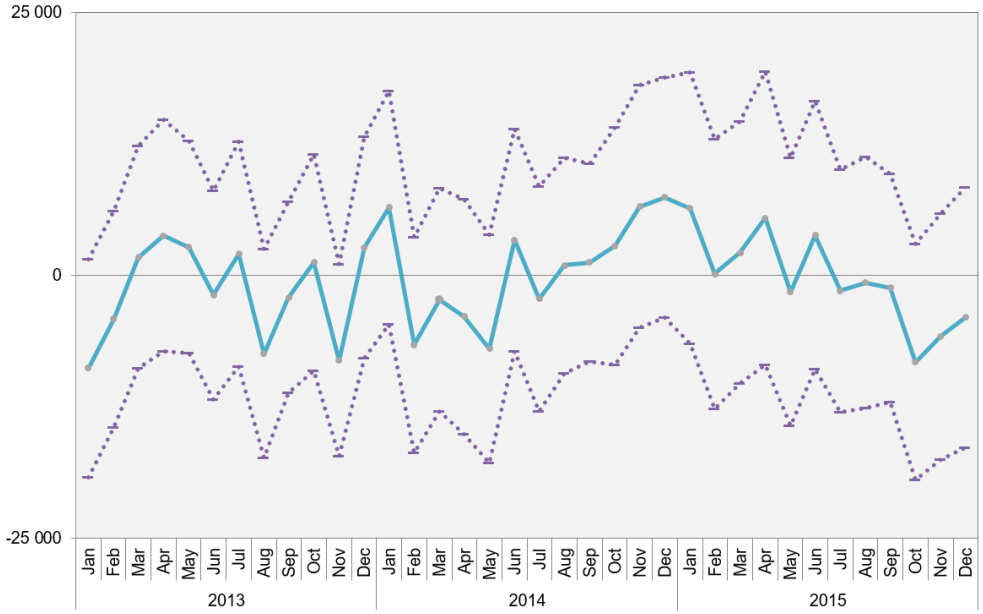


Diagram B4.11. Estimated bias with corresponding 95-per-cent confidence interval for estimates of change of the number of unemployed persons according to SAR. Post secondary education, aged 16-74. January 2013 – December 2015. Number.