

Economic Commentaries

Labour market development according to different statistical sources

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Statistics Sweden's Labour Force Surveys (LFS) are the official measure for unemployment and employment in Sweden. But there are also register-based statistics that can be used to refine and complement the picture of labour market development.

Despite the slight difference in the definitions, register-based measures show a trend for total employment and unemployment similar to the official LFS statistics. This is driven by the similar trends for Swedish-born persons. For foreign-born persons, however, the LFS statistics show a more favourable development on the labour market than the register-based statistical sources. However, as more foreign-born persons with a relatively short period of residence in Sweden enter the LFS sample, LFS unemployment for the foreign-born should follow the levels and trends shown by the Swedish Public Employment Service statistics more closely.

The Employment Service's register data is probably better than LFS at capturing groups in which unemployment implies long-term livelihood problems. In international comparisons, LFS statistics should be used in order to obtain as similar definitions as possible across different countries.

How the labour market develops is important for monetary policy. There are several statistical sources that can be used to measure the development of unemployment and employment in Sweden. This Economic Commentary aims to describe the differences and similarities between register-based and interview-based labour market statistics, what unemployment and employment trends look like according to these and what these statistical sources are used for. Combining different statistical sources provides a more refined and complete picture of labour market development. Table 1 in the appendix summarises the definitions of the labour market variables in the various data sources.

LFS – interview-based measure of unemployment and employment

The Statistics Sweden Labour Force Survey (LFS) is a sample survey that measures labour market conditions for the population aged 15–74 years. LFS is the official measure for unemployment and employment in Sweden and hence the measure for which the Riksbank and other actors publish forecasts. LFS is based on a sample of approximately 90,000 people every quarter. Data are collected by means of telephone interviews in which each person in the sample responds to questions about their labour market status during a specific reference week. Each person in the sample is interviewed once a quarter for two years. An eighth of the sample is replaced each quarter. LFS is published every month, but as it is designed as a quarterly survey, the monthly figures are relatively volatile. LFS definitions are harmonised to be as similar as possible to the definitions used in other countries.² In comparisons with other countries, therefore, LFS statistics are normally the most appropriate statistics to use.

Employed persons in LFS are defined as those who, during the reference week, worked at least one hour or had a job from which they were absent due to sickness or holiday, for example. Persons who receive salary when they participate in labour market policy programmes are also counted as employed in LFS. The employment rate is defined as the share of employed persons in the working-age population, normally 15–74 years. The number of persons employed and the employment rate have increased sharply in the last ten years (see diagram 1). Despite a decline in 2019, the employment rate is still on a higher level than at the peak of the previous economic boom prior to the financial crisis.

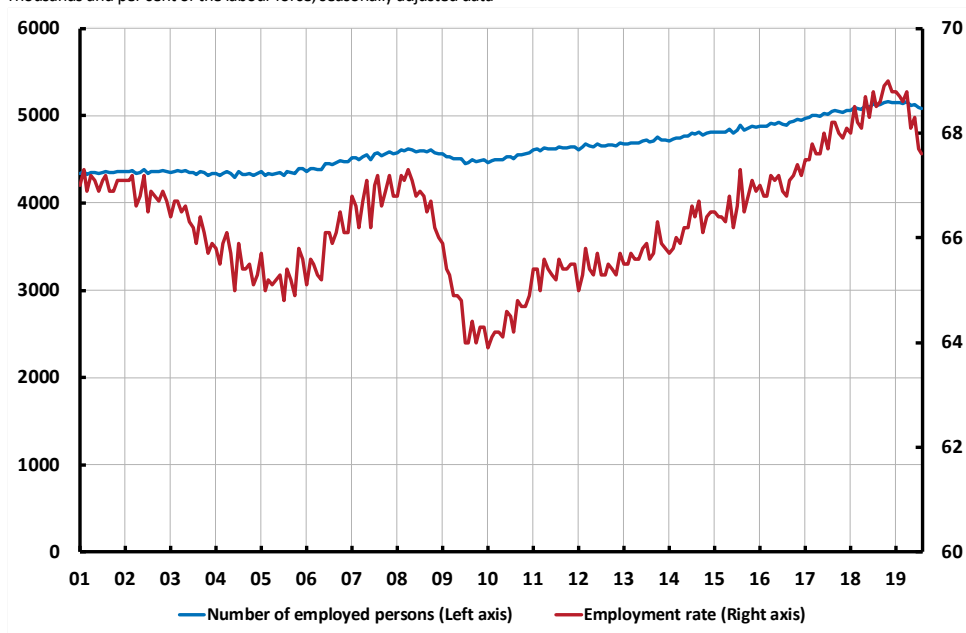
¹ The author would like to thank Mikael Apel, Jesper Hansson, Åsa Olli Segendorf, Ulf Söderström and Pernilla Wasén for valuable comments. The opinions expressed are those of the author and are not to be seen as the Riksbank's view.

² LFS definitions follow the guidelines derived from regulations issued by the International Labour Organisation (ILO) and Eurostat.

Employed persons can be divided into persons in work and persons who were absent from their work. Increased absence among employees leads to fewer hours worked even if employment is unchanged. It is therefore also important to follow the share of persons in work and not just employment. The share of employed persons in work has increased compared with the early 2000s due to a decrease in sickness absence, but has not shown any clear trend over the last ten years (see diagram 2). In 2019, the share of employed persons in work has risen while the employment rate has fallen.

Diagram 1. Number of employed persons and employment rate according to LFS, 15–74 years

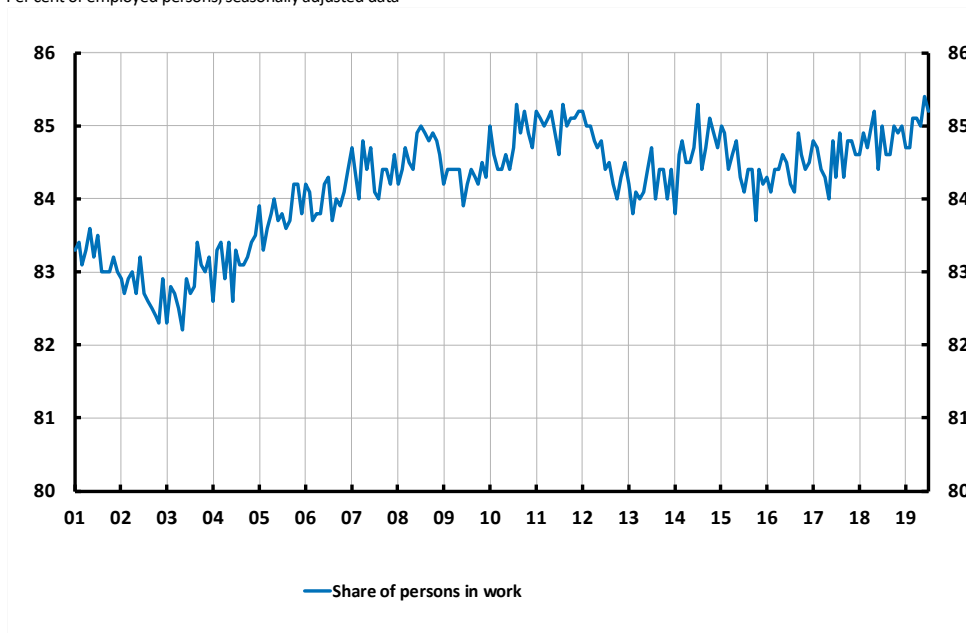
Thousands and per cent of the labour force, seasonally adjusted data



Source: Statistics Sweden

Diagram 2. Persons in work, 15–74 years

Per cent of employed persons, seasonally adjusted data

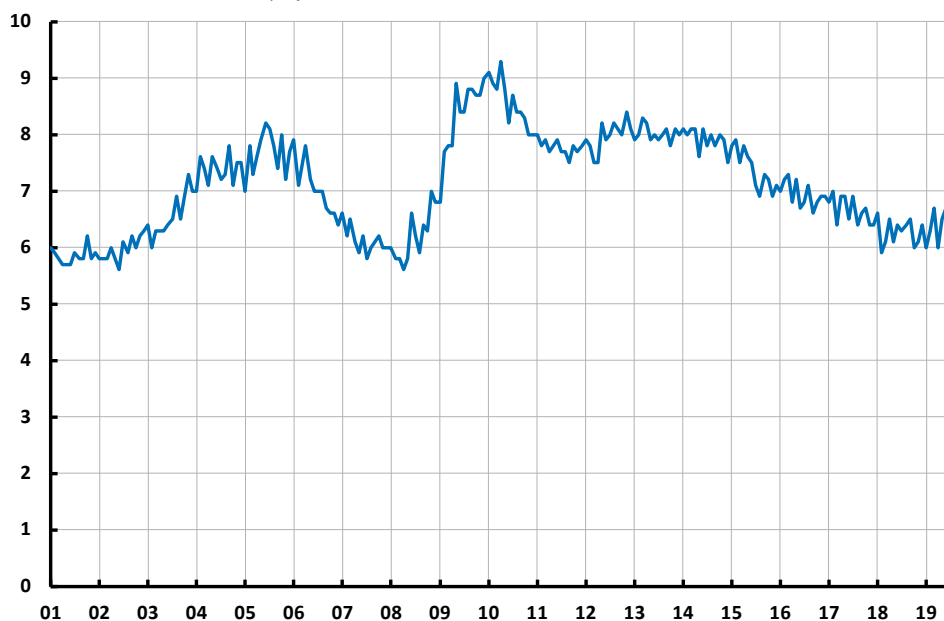


Source: Statistics Sweden

Unemployed persons in LFS include those who did not have a job during the reference week but had looked for work during the preceding four weeks and were able to work during the reference week or start within 14 days of the end of the reference week. Unemployed persons also include those who have obtained work starting within three months, assuming that they would have been able to work during the reference week or to start within 14 days of the end of the reference week. Full-time students who have applied for work and could have worked are therefore counted as unemployed persons in LFS. Relative unemployment is defined as the share of unemployed persons in the labour force. The labour force comprises employed and unemployed persons added together. Unemployment has shown a declining trend over the last six years, but has begun to rise again in recent months (see diagram 3).

Diagram 3. Unemployment according to LFS, 15–74 years

Per cent of the labour force, seasonally adjusted data



Source: Statistics Sweden

Persons who are neither employed nor unemployed in LFS belong to the “Not in the labour force” category. This category includes pensioners, students who don’t work or are not looking for work alongside their studies, homeworkers, conscripts and the long-term ill.

The response rate has fallen

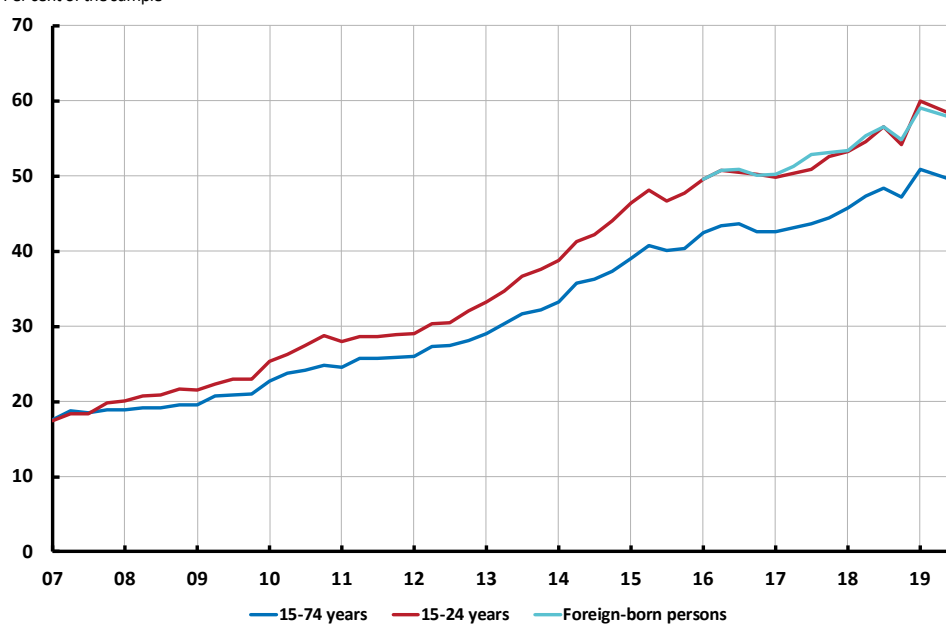
In recent years, LFS has had a problem with falling response rates. In the first half of 2019, non-response was around 50 per cent (see diagram 4). In the young people (15–24 years) and foreign-born persons categories, non-response was almost 60 per cent in the first half of 2019. When fewer than half the persons in the sample participate in the survey, questions are raised as to the reliability of the statistics. This may also be an explanation for the volatility in employment and unemployment in recent months. If the non-response is random, the falling response rate implies that, although uncertainty over the development is increasing, LFS still provides an unbiased picture of the labour market. If, on the other hand, the non-response to LFS interviews is not random, the problem is more serious as LFS can then provide a biased picture of the situation on the labour market. For example, LFS would give too bright a picture of employment and unemployment if those who have a job are more inclined to respond to LFS interviews than those who do not work. Statistics Sweden’s non-

response study confirms that this type of non-response bias exists but that the bias varies among different groups.³

A disadvantage with LFS is that the scope for studying labour market development for different groups and regions is limited. This is because LFS is a sample survey in which relatively few people participate, and the smaller the groups of interest are, the more uncertain the statistics become. In addition, a low response rate further increases uncertainty. To obtain a more complete and refined picture of the situation on the labour market, register-based data covering the whole population can be used.

Diagram 4. Non-response in Statistics Sweden's Labour Force Surveys

Per cent of the sample



Note. Statistics Sweden does not report non-response broken down by country of birth prior to 2016.

Source: Statistics Sweden

Register-based measure of unemployment

There are different types of register data that can be used to complement LFS. An often-used measure of unemployment is persons registered as unemployed at the Swedish Public Employment Service (PES). These statistics are the Employment Service's operational statistics and are used, among other things, for monitoring and evaluating labour market policy and for forecasts of volumes and costs for labour market policy measures. PES unemployment includes both openly unemployed persons and persons participating in programmes with activity support in the 16–64 years age-group.⁴ Openly unemployed persons also includes those who work fewer than 8 hours a week on average during one month. In LFS, most of these are counted as employed as one hour's work during the reference week is sufficient to be considered as employed.

PES statistics do not include persons who are looking for work without being registered at the Employment Service. These are largely young people who are not entitled to any compensation from the unemployment insurance and hence lack the incentive to register at

³ On an aggregate level, the relative non-response bias in December 2015 amounted to 1.1 per cent for the employed, 2.9 per cent for the unemployed and -2.7 per cent for the "Not in the labour force" category. This means that the number of employed persons, for example, was estimated to be 1.1 per cent higher among respondents than in the sample as a whole. See Statistics Sweden (2017).

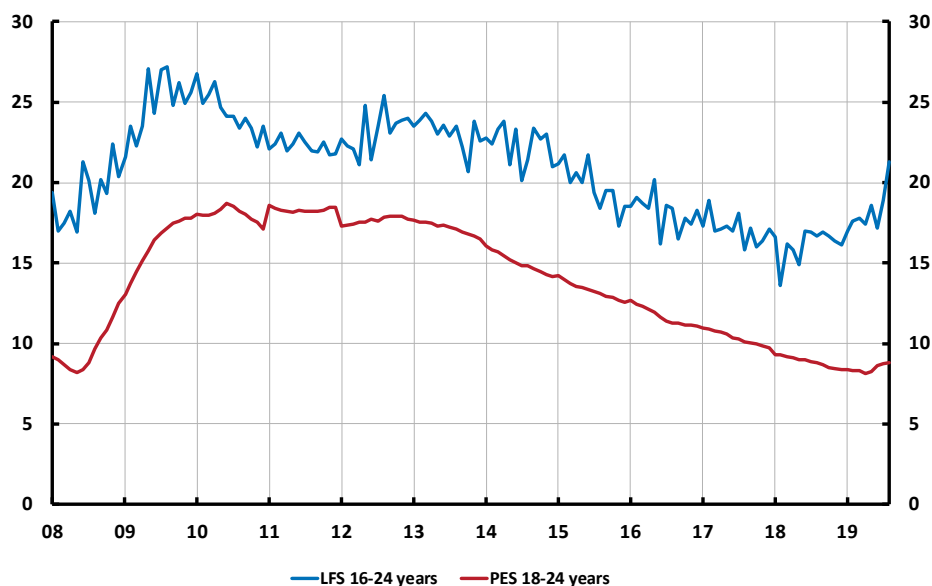
⁴ Persons with subsidised employment are not counted as unemployed in the Employment Service's statistics.

the Employment Service. For young people, therefore, PES statistics show lower unemployment than LFS (see diagram 5). Among young people who are unemployed according to LFS, less than 30 per cent are registered at the Employment Service.⁵ Most young people are unemployed for a relatively short amount of time and those who are more long-term unemployed are probably captured by PES statistics as well.

In total, about 60 per cent of the unemployed persons in LFS are also registered as unemployed at PES. As the definition of unemployment is not the same, there are registered unemployed persons at PES who are counted as employed or outside the labour force in LFS just as there are unemployed persons in LFS who are not registered as unemployed at PES.⁶ Despite the differences in definitions, the development of total unemployment rate and of the total number of unemployed persons according to LFS and according to PES has been relatively similar over time (see diagram 6).

Diagram 5. Unemployment among young people according to LFS and the Swedish Public Employment Service (PES)

Per cent of the labour force, seasonally adjusted data



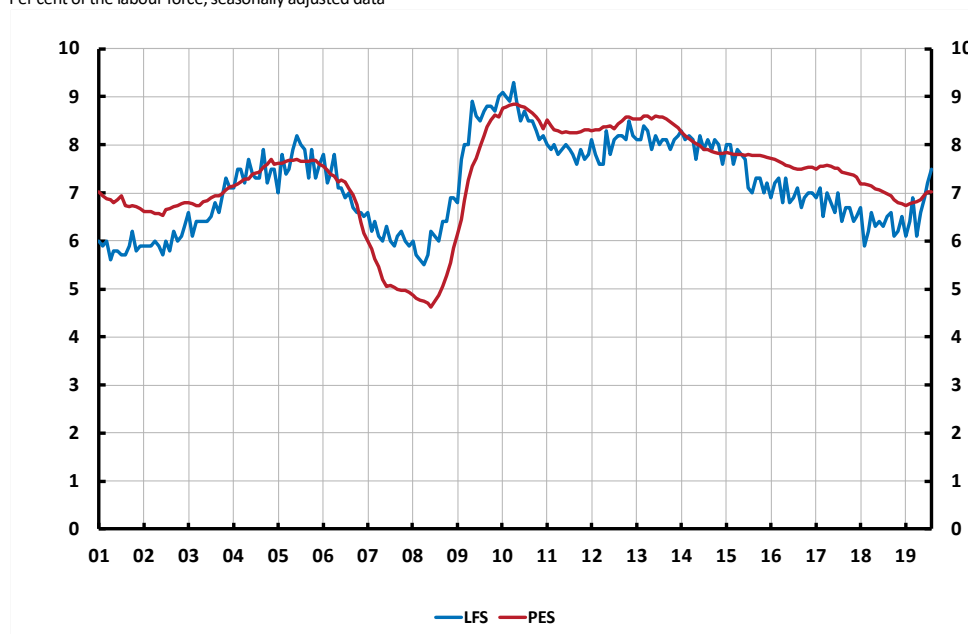
Sources: Statistics Sweden and the Swedish Public Employment Service.

⁵ See Statistics Sweden (2018).

⁶ See Statistics Sweden (2016).

Diagram 6. Unemployment 16–64 years according to LFS and the Employment Service (PES)

Per cent of the labour force, seasonally adjusted data



Source: Statistics Sweden and the Swedish Public Employment Service.

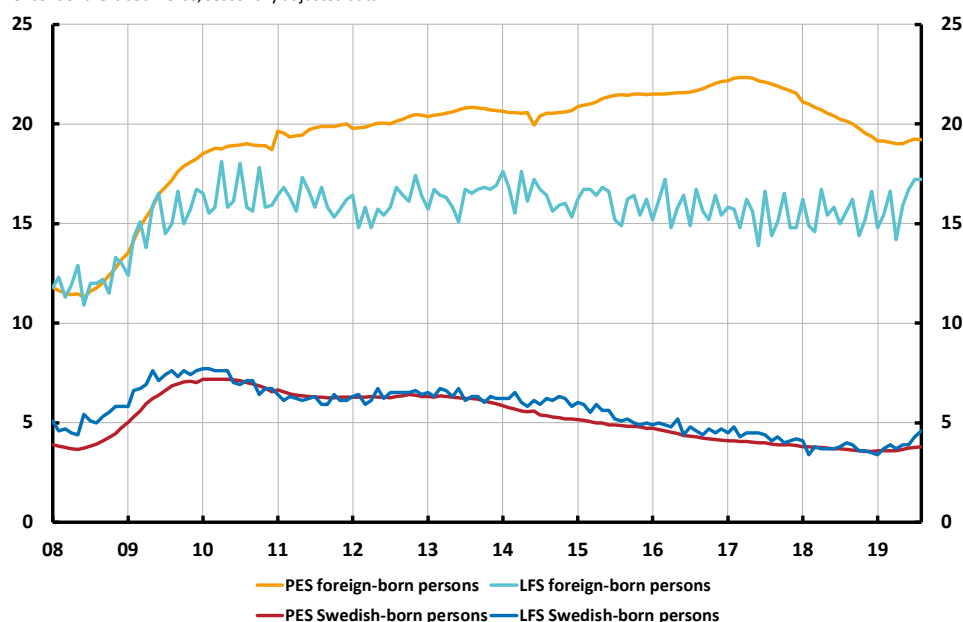
LFS and PES statistics provide different pictures of unemployment for foreign-born persons

The advantage of PES statistics is that it is easier to study different demographic groups when the statistics contain all those registered and not just a sample. In addition, PES statistics are good at capturing groups for which unemployment implies livelihood problems. This is because a person must be registered at the Employment Service in order to receive compensation from the unemployment insurance and because many municipalities require those who do not have work and are fit for work to be registered at the Employment Service in order to receive income support. At the same time, however, unemployment is underestimated in groups that have no incentive to register at the Employment Service, such as young people. PES statistics may also overestimate unemployment for certain groups that are registered but are not actively looking for work according to the LFS definition (for example due to temporary impediment).

For Swedish-born persons (16–64 years), LFS and PES statistics show similar levels and trends of unemployment (see diagram 7). For foreign-born persons, however, LFS shows a more positive development of the unemployment than PES statistics. According to PES, unemployment rose among foreign-born persons in 2008–2017 and has fallen somewhat since then. According to LFS, unemployment rose among foreign-born persons in 2009–2010 by approximately the same as according to PES, but has since then been largely unchanged. An important explanation for the difference is that newly arrived refugees are not included in the LFS sample while most refugees who do not have a job when they obtain a residence permit are registered at the Employment Service in order to participate in establishment initiatives. Therefore, PES statistics probably provide a more accurate picture of unemployment among refugee migrants with a relatively short period of residence. Furthermore, the fact that the LFS non-response is substantial among the foreign-born raises fears regarding how well LFS measures labour market development for foreign-born persons. When more foreign-born persons with a relatively short period of residence in Sweden enter the LFS sample, unemployment for foreign-born persons should follow the levels and trends shown by PES statistics more closely. Most recently, unemployment among the foreign-born

has risen in accordance with both measures and the difference in unemployment level between the statistical sources has decreased somewhat. LFS unemployment for the foreign-born is very volatile, however, making it difficult to interpret short-term changes.

Diagram 7. Unemployment among Swedish-born and foreign-born persons according to LFS and PES, 16–64 years
Per cent of the labour force, seasonally adjusted data



Sources: Statistics Sweden and the Swedish Public Employment Service.

RAMS – Register-based measure of employment

There are also register-based measures of employment. Register-based labour market statistics (RAMS) provide annual information about employment among the population based on administrative data. The advantage of RAMS is that it is possible to study developments for different groups and regions as the statistics cover the entire working-aged resident population in Sweden. RAMS measures the employment status of individuals in November and this is based on the Swedish Tax Agency's income statement register and income tax returns as there is no data on hours worked. To be defined as employed, the person must have a gross income over a limit value.⁷ These limit values correspond to the lowest incomes for employed persons in different age-groups in the LFS sample who have responded in the survey during October and November. Therefore, employment according to RAMS should correspond approximately to the employment level for the same age-groups in LFS in November.

As RAMS covers the entire population, there is no sample uncertainty and it is possible to study many different sub-groups. But since the LFS sample is used to derive the income limits for employed persons in RAMS, the figures are affected by the uncertainty in LFS. Those who only work for part of the year and have a loose connection to the labour market face the greatest risk of being incorrectly classified.⁸ RAMS also has a relatively long time-lag compared with LFS as data are released 11 months after measurements are taken. RAMS can therefore not be used to study the labour market in real time nor for economic forecasts.

⁷ To calculate the limit values, data are used on sex, age, number of income statements, period of employment on income statement and whether the person is self-employed or not.

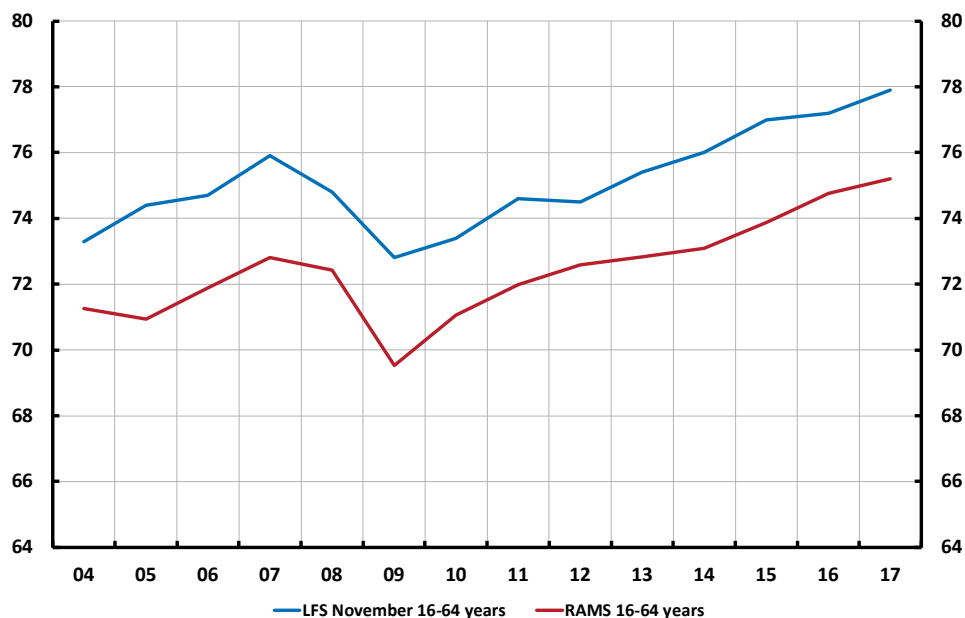
⁸ For natural reasons, persons who receive wage disbursements as cash in hand, i.e. when the employer does not submit an income statement to the Tax Agency, are classified as "not gainfully employed".

However, data from RAMS are often used in labour market research and structural analyses of the labour market.

The employment rate according to RAMS and LFS November measurements for 16–64 year-olds shows a relatively similar development, but not the same level (see diagram 8).⁹ The difference in the employment rate between LFS and RAMS is due to differences in the employment rate for foreign-born persons (see diagram 9). For the Swedish-born, the employment rate according to LFS and RAMS is very similar. For the foreign-born, LFS produces a significantly higher employment rate than RAMS. Foreign-born persons have lower employment intensity, i.e. they work full-time and the whole year to a lower degree, and hence have lower annual earnings than Swedish-born persons. Consequently, foreign-born persons are more often classified as “non-employed” in RAMS. The derivation of employment figures in RAMS do not take birth region into account, and the income limits are therefore the same for foreign-born and Swedish-born persons.

Diagram 8. Employment rate, 16–64 year-olds according to RAMS and LFS in November.

Per cent of the population

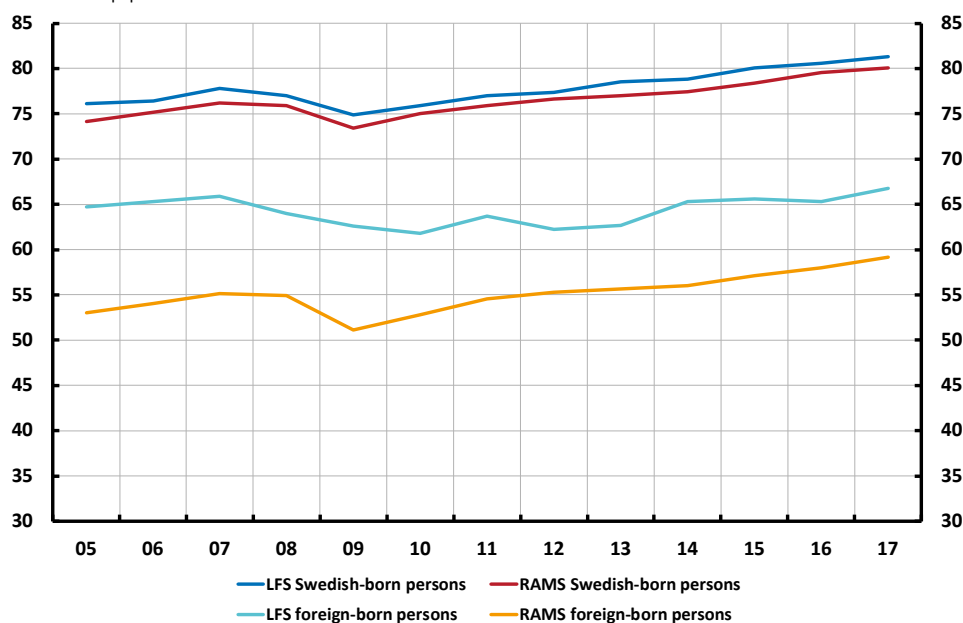


Source: Statistics Sweden

⁹ The figure shows the employment rate for 16–64 year-olds because RAMS employment for persons over the age of 65 is not completely comparable over time.

Diagram 9. Employment rate according to RAMS and LFS in November for Swedish-born and foreign-born persons, 16–64 years

Per cent of the population



Source: Statistics Sweden

Conclusions

Total unemployment and employment rates have shown relatively the same development over time regardless of whether these are studied using Statistics Sweden’s Labour Force Surveys (LFS) or register-based measures. This applies even if we study how the situation on the labour market has developed for Swedish-born persons. For foreign-born persons, however, LFS show a more favourable development on the labour market than register-based measures. This is due in part to the LFS sample not containing persons who have been in the country for a short length of time and to the rapid change in the population structure as a result of refugee immigration. When more foreign-born persons with a relatively short period of residence in Sweden enter the LFS sample, unemployment for foreign-born persons should follow the same levels and trends shown by the Swedish Public Employment Service (PES) statistics more closely.

The employment rate for foreign-born persons is also significantly higher according to LFS than according to register-based labour market statistics (RAMS), and the difference has been relatively unchanged over the past ten years. Foreign-born persons have lower employment intensity and hence lower annual earnings than Swedish-born persons. Consequently, foreign-born persons are more often classified as “non-employed” in RAMS. To a certain extent, the difference between LFS and RAMS may decrease over time when the LFS sample includes more foreign-born persons with a relatively short period of residence.

LFS has had problems with a falling response rate in recent years. In 2019, non-response has been over 50 per cent for the first time, which raises questions as to how reliably LFS measures the situation on the labour market. It is therefore important to also follow other statistical sources to obtain a more refined and complete picture of the labour market development. Since January 2019, employers must submit a monthly employer’s return on the individual level to the Swedish Tax Agency. The employer’s return contains data on

disbursed salary and deducted income tax for each employee. In future, these statistics could supply register-based data on the total number of employees almost in real time.

References

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Statistics Sweden (2017), "Analys av bortfallsbias avseende Arbetskraftsundersökningarna", Arbetsmarknad och utbildning, Bakgrundsfakta 2017:1.

Statistics Sweden (2018), "Jämförandestudie AKU och Af 2016 – Arbetslöshetstid i Arbetskraftsundersökningarna (AKU) och tid utan arbete på Arbetsförmedlingen (Af)".

Appendix

Tabell 1. Definitions and description of different labour market statistics

Statistical source	Description
Statistics Sweden's Labour Force Survey (LFS)	Interviews, sample, 15–74 years, published every month, used in forecasts, for example.
Unemployment	Unemployed persons who did not have a job during the reference week but had looked for work during the preceding four weeks and were able to work during the reference week or start within 14 days of the end of the reference week. Unemployed persons also include those who have obtained work starting within three months, assuming that they would have been able to work during the reference week or to start within 14 days of the end of the reference week. Relative unemployment is defined as the share of unemployed persons in the labour force.
Employment	Employed persons are defined as those who, during the reference week, worked at least one hour or had a job from which they were absent due to sickness or holiday, for example. The employment rate is the share of employed persons in the population.
Labour force	The number of unemployed persons plus the number of employed persons.
Swedish Public Employment Service statistics (PES)	Register data from operational statistics, total, 16–64 years, published every month, used to monitor labour market policy, for example.
Unemployment	Persons registered as unemployed at PES (openly unemployed and job-seekers in programmes with activity support). Openly unemployed persons also includes those who work fewer than 8 hours per week on average. Relative unemployment is defined as the share of unemployed persons in the register-based labour force.
Labour force	Number of persons registered as unemployed plus employed persons according to RAMS. Night population is used in regional analysis. Data on the number of employed persons refer to November in the most recent year available, while the data on the number of job-seekers are updated every month.
Register-based labour market statistics (RAMS)	Register data based on income statements and income returns, total, 16–74 years, published once a year, used in labour market research and structural analyses, for example.
Employed persons (gainfully employed persons)	Employment status is calculated based on income statements and declared income. Gainfully employed persons include persons who have declared income from business activities and persons with income statements that have salary income above a limit value. Employment status is measured once a

year in November and is published 11 months after the measurement is taken.

Source: Statistics Sweden and the Swedish Public Employment Service.