



Economic Commentary

New indicators of resource utilisation

Hanna Lovéus

NO. 4 2023, 26 April

Summary¹

The objective of monetary policy is to maintain permanently low and stable inflation and, at the same time, without neglecting the overall inflation target, to contribute to a balanced development of the real economy. Resource utilisation is central to the monetary policy analysis, partly because it affects inflation and partly because it is an indication of whether production and employment are in a cyclical balance. Resource utilisation cannot be observed directly but must be estimated. The problem with this is that there is no single measure or method that is recognised as better than any other. The Riksbank therefore uses a broad set of measures to assess resource utilisation.

While the spread between different measures can be large at times, they generally tend to covary. In this Economic Commentary, I present two indicators that have been developed to illustrate these underlying movements: a measure of overall resource utilisation in the economy and a measure specifically designed to show labour market tightness. Both measures indicate that resource utilisation rose rapidly in 2021 and was very high for much of 2022. However, last year ended with resource utilisation turning downwards.

The new indicators will primarily provide up-to-date information on resource utilisation in the economy and complement the analysis already carried out by the Riksbank. One advantage is that they capture short-term changes in supply, which can be important when assessing price developments. They also have a high covariation with inflation a few years ahead.

Author: Hanna Lovéus, works at the Riksbank's Monetary Policy Department²

¹ Economic Commentaries are brief analyses of issues with relevance for the Riksbank. They may be written by individual members of the Executive Board or by employees at the Riksbank. Employees' commentaries are approved by their head of department, while Executive Board members are themselves responsible for the content of the commentaries they write. The opinions expressed in Economic Commentaries are those of the authors and are not to be seen as the Riksbank's view.

² I would like to thank Magnus Lindskog, Mattias Erlandsson, Maria Sjödin, Pernilla Wasén, Iida Häkkinen Skans, Vesna Corbo, Mårten Löf and Anders Vredin for their valuable comments over the course of this work.

Important to have an assessment of resource utilisation in the economy

It is important for the Riksbank to estimate how high resource utilisation is for two reasons. The first concerns the Riksbank's objectives for monetary policy. The Riksbank's principal objective of monetary policy is to keep inflation low and stable. Without neglecting the inflation target, monetary policy shall also contribute to the balanced development of production and employment. In other words, provided that the principal objective is met, the Riksbank should try to reduce fluctuations in the real economy by stabilising production and employment around the levels that are sustainable in the long run. This is linked to the utilisation of resources in the economy. The higher production is in relation to its long-term sustainable level, the less spare production capacity there is and the more difficult it becomes to increase production. The second reason is that resource utilisation and economic activity are important factors in the assessment of price and wage pressures in the economy.

There are several different ways of measuring the amount of spare capacity in the economy

The amount of spare production capacity (labour and capital) existing at any given time in the economy cannot be observed directly. Nevertheless, there are several different ways to estimate it. For example, survey data includes information on the state of resource utilisation within companies, as well as in the economy as a whole. Companies describe the extent to which their capital and labour are utilised (capacity utilisation) but also how difficult it is to recruit new employees, for example if there is a shortage of labour. With labour market statistics, we can measure how many job vacancies there are in the economy compared to how many people are unemployed. A large number of job vacancies per unemployed person indicates that resource utilisation is high in the labour market, making it difficult for companies to recruit. Unemployment and the employment rate also say something about the labour market situation.

In addition to survey data and other statistics, the Riksbank tries to assess resource utilisation using different types of gaps. The gaps show how time series for economic variables deviate from the levels that are assessed to be sustainable in the long run (for example the GDP gap, the hours gap and the unemployment gap). Previously, the Riksbank also published a resource utilisation indicator (RU indicator) that measured resource utilisation using survey data.³ However, the indicator ceased in 2021 because several of the variables included in it had breaks in their time series (read more about this in the appendix). This Economic Commentary presents an update of the previous RU indicator.

³ See Nyman (2010). Over the years, however, the content of the indicator has changed. The labour market statistics and capacity utilisation according to Statistics Sweden were removed and eventually only survey data from the Economic Tendency Survey remained.

But no measure gives the whole truth

All ways of measuring resource utilisation are associated with uncertainties. Basing the analysis on the gaps is difficult as long-term sustainable levels for GDP, employment and hours worked cannot be determined with certainty. The assessed levels, as published by the Riksbank in its Monetary Policy Report, are therefore uncertain⁴. In addition, the long-term sustainable levels are not designed to include short-term changes in supply, such as the ones that occurred during the pandemic. During the pandemic, labour moved from service industries to less service-oriented industries, such as warehousing and logistics. When demand recovered in the service industries, the supply of labour was smaller than before the pandemic. Consequently, resource utilisation quickly became high in these sectors. Over time, the labour force normally adjusts so that supply rises in sectors where demand is high but, in the short term, such changes in supply can have major effects on resource utilisation. They can also have important implications for price pressures.

GDP outcomes from the National Accounts also have a relatively high degree of uncertainty and quarterly GDP outcomes can be revised significantly, when new statistics become available. These revisions can also have a relatively large impact on the estimated GDP gap.

Several labour market measures, such as unemployment and the employment rate, are strongly affected by structural changes in the labour market. These can cause trends in the time series and make it difficult to assess which levels indicate that resource utilisation is high or low. When cyclical fluctuations occur, it can also be more difficult to assess resource utilisation in the labour market as companies sometimes retain more employees than production requires. This, in turn, leads to companies not hiring as many new employees once production recovers. During the pandemic, this became even more evident as companies received support for short-term work in order to retain their staff.

Survey-based statistics can help to solve some of the problems mentioned above. Survey-based statistics are normally not revised, so compared to the GDP gap, they can provide a more stable assessment of the current situation. Short-term changes in supply should also be captured in companies' estimates of capacity utilisation, as well as whether the companies are retaining more employees than production requires. However, there are also uncertainties linked to survey-based statistics. For example, the fact that companies say that they are facing labour shortages says very little about how extensive such shortages are in practice or whether they are general or only linked to individual specialist skills.

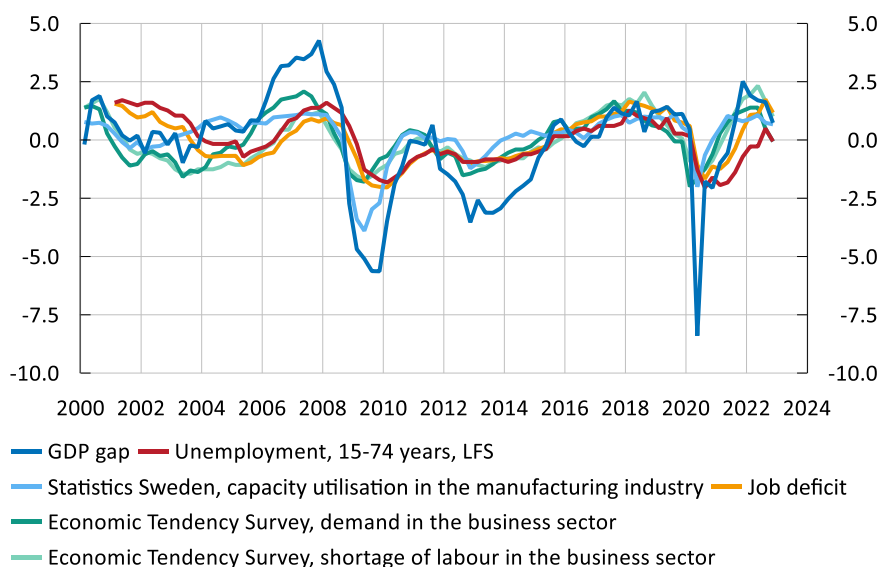
Different individual measures of resource utilisation thus have different shortcomings. The Riksbank therefore makes an overall assessment based on several different measures. In Figure 1, I show a selection of these measures. There we can see that, although the levels vary, it is clear that resource utilisation appears to have been high

⁴ The Riksbank uses a production function to measure potential GDP; the method is outlined in Sveriges Riksbank (2010). However, the calculation of potential productivity has changed since 2010. Today, no separate calculations are made of TFP or capital services; instead, actual productivity is HP-filtered and projected using estimates.

around 2007, 2018 and 2022 and low around 2009, 2013 and 2020. However, the spread between the measures can be large at times. For example, resource utilisation appears to have been high in 2022 according to the GDP gap, “labour shortages” and “job deficit”, but more normal according to the unemployment rate (see Figure 1). It seems likely that the unemployment rate would have been lower were it not for a combination of structural factors in the labour market and short-term supply changes during and after the pandemic.

Figure 1. Measures of resource utilisation

Per cent and standard deviation respectively



Note. Quarterly data. All series except the GDP gap are standardised with mean = 0 and standard deviation = 1. The GDP gap refers to the deviation of GDP from the Riksbank’s assessed trend. Job deficit refers to the number of job vacancies minus the number of unemployed, divided by the number of people in the labour force. The unemployment rate is inverted.

Sources: The National Institute of Economic Research, Statistics Sweden and the Riksbank.

Updated indicator of resource utilisation

There are advantages in having a measure that can summarise information from a variety of data. The Riksbank’s previous resource utilisation indicator (RU indicator) did just that. Summarising information from a larger data stock is a common method often used to provide an overall picture of an underlying or unobservable development (see, for example, Stock and Watson, 2006 and 2016). In simple terms, the idea is to remove noise and identify underlying, common movements in the variables. It is also advantageous to have a measure that is not dependent on assessments, as the Riksbank’s long-term sustainable levels are, but only summarises what companies state.

The new RU indicator will provide up-to-date information on resource utilisation in the economy and support the assessment of the gaps in real time. I have based the new indicator, like the old one, solely on survey data, primarily from the National Institute of Economic Research; see Table 2 in the appendix. The criteria for the selection of the included series are that they capture the amount of spare capacity in the

economy, are not dependent on assessments and are published near the end of the quarter.⁵

Capacity utilisation and labour shortages clearly measure the amount of spare capacity in companies and the labour market. The Economic Tendency Survey also provides information on what limits companies' production, such as shortages of labour, material or equipment. These series can also indicate the extent to which spare capacity exists.⁶ During the pandemic and the subsequent recovery, production constraints have also been reflected in long delivery times in the manufacturing sector according to the Purchasing Managers' Index and it is therefore also a potential indicator of resource utilisation.

The series included in the new RU indicator are first normalised, so that they have a mean of zero and a standard deviation of one, calculated from 1996 to the latest outcome. They are thus measured on the same scale and interpreted in terms of standard deviations from the mean. All series are then weighted together with equal weights. Finally, the final indicator is also normalised so that it has a mean of zero and a standard deviation of one. The period over which one chooses to normalise is not irrelevant, as the mean of the series will represent normal resource utilisation. An RU indicator close to zero should illustrate cyclical balance. To assess whether the normalisation of the previous RU indicator seemed reasonable, Nyman (2010) examined whether the mean value of the indicator was close to zero over 2000–2007, a period when the economic cycle was considered to have been relatively normal. The mean value of the previous RU indicator was approximately +0.1 in 2000–2007 and the mean value of the new RU indicator is –0.04.

The main advantage of weighting the indicator with equal weights is that it is easy to interpret and calculate, but it is also robust. However, other weighting methods lead to a very small difference in the indicator as the included series are highly correlated and therefore I choose the method that is simplest and most transparent (see Figure 7 in the appendix).⁷

⁵ I have selected the included series because they are deemed to capture the amount of spare capacity in the economy. Nonetheless, there are even more measures that say something about resource utilisation but which are not included in the new RU indicator. For example, Statistics Sweden publishes capacity utilisation within the manufacturing sector and the number of job vacancies in the economy. However, these are published about a month later than the Economic Tendency Survey and have therefore not been included. The previous RU indicator also included information on order books and profitability. These are not obvious measures of resource utilisation, but are believed to correlate well with resource utilisation. When demand is high in the economy (and order books and profitability are high), the amount of spare capacity also tends to be low. However, much like the Riksbank's assessed gap, the link to resource utilisation is based on the assumption that supply is relatively sluggish in the short term. If demand is high while supply is temporarily lower, there will be less spare capacity than the order books indicate. Profitability can also be affected by factors other than demand, such as exchange rate movements.

⁶ There is a time series break in the questions concerning what limits companies' production. A discussion of the time series break and how it has been handled can be found in the appendix.

⁷ Other commonly used methods are principal component analysis or dynamic factor modelling (see, for example, NIER (2016), Hakkio and Willis (2014), Clavel and Minodier (2009) and Galli (2018)). These are statistical methods that aim to explain as much of the variation in the original data with as few variables as possible.

New indicator of labour market tightness

The RU indicator thus captures a number of different aspects that can affect production and price developments in the economy. Developments in the labour market constitute a central part of total resource utilisation and, from a supply perspective, the availability of labour is crucial for both production and wage development. To summarise the state of the labour market, we have therefore also created an indicator specifically for it (the LM indicator). It summarises data from the Economic Tendency Survey and statistics from the Swedish Public Employment Service and Statistics Sweden (see Table 3 in the appendix). This allows us to supplement the companies' perceived labour shortages with how long time it takes to recruit and how many job vacancies there actually are per unemployed person.

I have chosen the included series because they contain information on the tightness of the labour market. They have a clear cyclical pattern and begin no later than 2001. It has not been as important that the included series are published close to the end of the quarter for this indicator, as it was with the RU indicator. This is partly because the RU indicator already fulfils this need. New outcomes for the labour market indicator will always come about a month later than the RU indicator. The LM indicator is also composed of equal weights and, since the series included are highly correlated, the difference is small when other methods are used; see Figure 7 in the appendix. Like the RU indicator, the LM indicator and its included series are normalised, from 2001 to the latest outcome. However, since the LM indicator does not start until 2001, it is difficult to use the same method to assess the normalisation that we use for the RU indicator, which is to examine whether the mean was close to zero in 2000–2007. However, in 2001–2007, the mean is close to zero (+0.1).

The indicators are deemed to capture historical economic developments

The indicators provide a picture of economic developments over time that resembles those provided by the Riksbank and OECD's gaps, although the scale may differ as the indicators, unlike the gaps, are standardised (see Figure 2 and Figure 3).⁸ However, the indicators do not provide the same picture of which economic boom or recession was strongest. This may be because the indicators contain information on changes in supply that the gaps do not capture.⁹ For example, during the pandemic and subsequent recovery, companies' production possibilities were limited by several factors, including the spread of infection, restrictions and shortages of materials and labour. This meant that two of the series included in the RU indicator, "production obstacles other than insufficient demand" and delivery times as measured by the Purchasing Managers' Index, increased rapidly, contributing to a rise in the RU indicator over

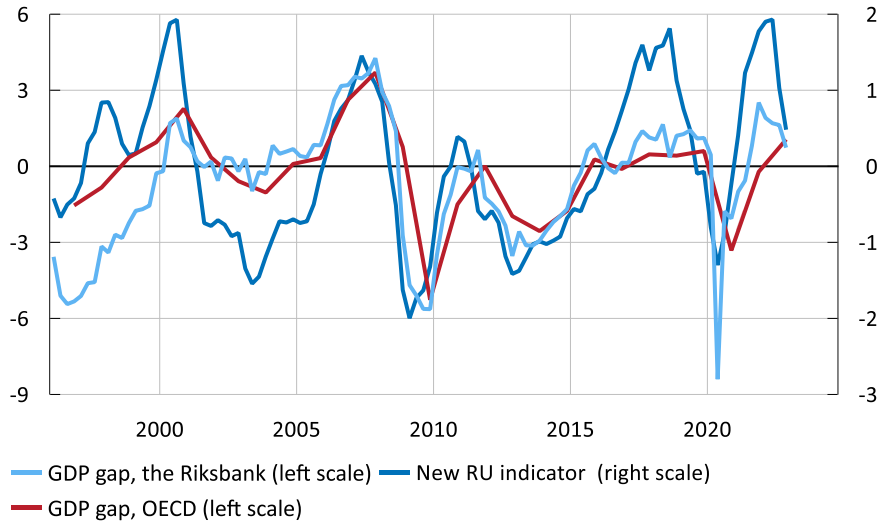
⁸ There are different scales for the RU indicator and the GDP gaps. The RU indicator is set to have a mean value = 0 and standard deviation = 1, while the Riksbank's GDP gap has a mean value = -0.7 and standard deviation = 2.4. If I were to choose the same mean value and standard deviation for the RU indicator, the scales would instead be the same.

⁹ It may also be due to structural changes over time in how companies respond to the survey questions, so historical level comparisons of the indicators, and survey data in general, should be made with caution.

2021 to a historically high level in 2022. Towards the end of 2022, however, resource utilisation started to cool off.

Figure 2. The new RU indicator and the Riksbank and OECD's GDP gaps

Percentage and standardised data respectively

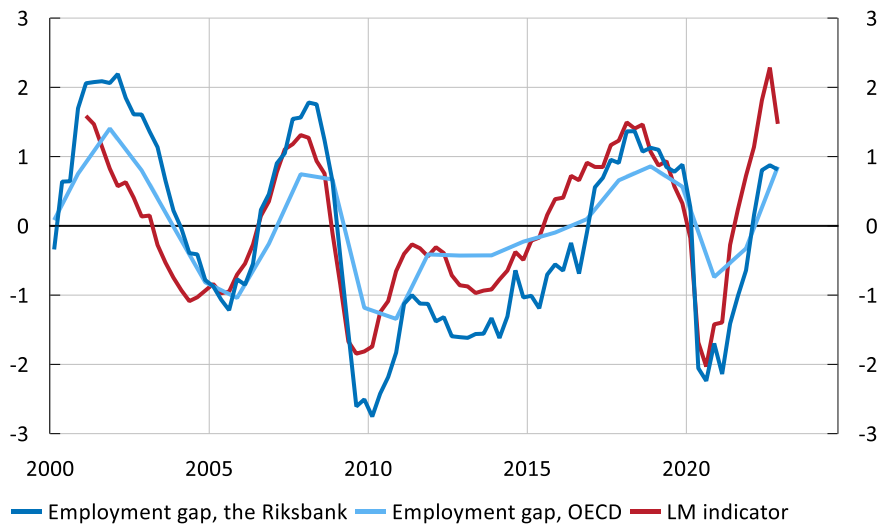


Note. The RU indicator is standardised with mean value = 0 and standard deviation = 1. The gaps refer to the deviation of GDP from the trends assessed by the Riksbank and OECD respectively.

Sources: Statistics Sweden, OECD and the Riksbank.

Figure 3. The labour market indicator and the Riksbank and OECD's employment gaps

Percentage and standardised data respectively



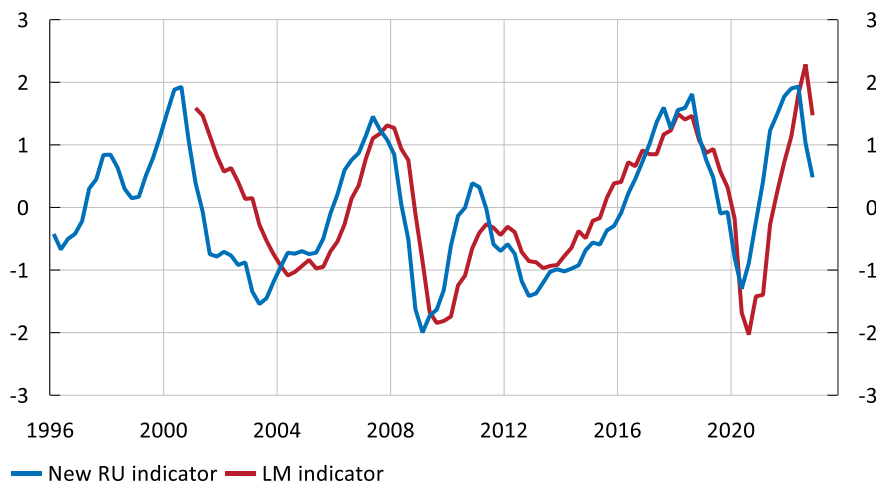
Note. The LM indicator is standardised with mean value = 0 and standard deviation = 1. The gaps refer to the deviation of employment from the trends assessed by the Riksbank and OECD respectively.

Sources: Statistics Sweden, OECD and the Riksbank.

The RU indicator seems to lead the LM indicator, which is in line with how GDP and the labour market normally react to cyclical fluctuations (see Figure 4). It takes time for the number of persons employed to adjust when production opportunities change. Hiring or firing staff takes time, so when demand suddenly falls (rises), it is productivity that falls (rises) first. As the RU indicator also captures resource utilisation within companies, it captures such productivity changes.

Figure 4. New indicators of resource utilisation and labour market tightness

Standardised data



Note. The indicators are standardised with mean value = 0 and standard deviation = 1.

Source: The Riksbank

The new indicators have a high covariation with inflation

The main purpose of the new indicators is to provide up-to-date information on resource utilisation and to serve as a support when the Riksbank assesses the development of the gaps in real time. However, resource utilisation also affects price and wage pressures in the economy and it is therefore interesting to examine how well the new indicators covary with inflation. Flodberg, Hesselman and Löf (2022) examined how around fifty different labour market measures covary with inflation and found several labour market measures that have a high correlation with inflation.

Both of the new indicators also have a high covariation with inflation (see Table 1). According to the correlation analysis, the new RU indicator and the LM indicator lead inflation by two years and a little more than one year respectively. However, they have a lower correlation with inflation than the labour market measures that came out best in the analysis by Flodberg, Hesselman and Löf (2022).¹⁰

¹⁰ The labour market measures, with the exception of total unemployment, start later than the new indicators for resource utilisation, i.e. the time series are shorter. When I re-estimate the correlations for the period 2006–2019 (same period as the labour market measures), the covariance with inflation is lower for the RU indicator and unchanged for the LM indicator compared with the results in Table 1.

Compared with the Riksbank's GDP gap, the new indicators have a higher correlation with inflation (see Table 1). This could be because the indicators capture short-term supply changes that the GDP gap does not, which may be important for price developments.

Table 1. Maximum correlation between different labour market measures and inflation over the period 2000–2019

Coefficient and time lag as number of quarters in brackets

Measure	n	CPIF-XE	UND24	CPIFPC
RU indicator	72	0.70 (8)	0.71 (8)	0.75 (8)
LM indicator	68	0.67 (5)	0.71 (5)	0.75 (6)
GDP gap	72	0.54 (7)	0.57 (7)	0.60 (7)
Long-term unemployment >12 months, PES	48	-0.85 (3)	-0.91 (3)	-0.92 (2)
Average duration of unemployment, foreign born	51	-0.83 (3)	-0.79 (3)	-0.86 (2)
Principal component	48	-0.78 (6)	-0.82 (6)	-0.83 (5)
Total unemployment, LFS	72	-0.60 (4)	-0.66 (4)	-0.69 (4)

Note. n refers to the number of observations. CPIF-XE refers to the CPIF excluding energy, UND24 and CPIFPC are two other measures of underlying inflation. The inflation measures refer to the annual percentage change. The parentheses show the length of the lag. PES refers to data from the Swedish Public Employment Service, other labour market series (except for the principal component) are from the LFS. The two best labour market measures from Flodberg, Löf and Hesselman (2022) are included in the table, including the principal component from their analysis and total unemployment.

Source: The Riksbank.

Summary

In this Economic Commentary, I present two new indicators for estimating resource utilisation: the RU indicator and the LM indicator. They are intended to be used as a complement to the assessment of the GDP and labour market gaps. The indicators, particularly the RU indicator, capture short-term changes in supply. They therefore contribute important information in addition to the Riksbank's gap calculations.

The new indicators have a high covariation with inflation, with some time lag, but other labour market measures have at least as high a correlation with inflation. Compared to the GDP gap, the indicators have a higher correlation with inflation, which could be because they capture short-term supply changes that the gap does not.

The new indicators will complement the existing analyses currently made by the Riksbank. However, they are not better than any other individual measure when it comes to assessing resource utilisation. The Riksbank will therefore continue to use a broad set of indicators for the overall assessment of resource utilisation.

References

- Clavel, Laurent and Christelle Minodier (2009), "A Monthly Indicator of the French Business Climate", *Documents de travail* No. 2, French National Institute of Statistics and Economic Studies (INSEE)
- Flodberg, Caroline, Marie Hesselman and Mårten Löf (2022), "Can inflation forecasts be improved by using alternative measures of labour market slack?", Staff Memo, Sveriges Riksbank.
- Galli, Alain (2018), "Which Indicators Matter? Analyzing the Swiss Business Cycle Using a Large-Scale Mixed-Frequency Dynamic Factor Model", *Journal of Business Cycle Research* 14, 179–218.
- Hakkio, Craig and Jonathan Willis (2014), "Kansas City Fed's Labor Market Conditions Indicators (LMCI)", *The Macro Bulletin*, August 2014, Federal Reserve Bank of Kansas City.
- NIER (2016), "En sammanfattande indikator för resursutnyttjandet i ekonomin" (A summary indicator of resource utilisation in the economy), special analysis in Swedish Economy Report, June 2016, NIER.
- Nyman, Christina (2010), "An indicator of resource utilisation", Economic Commentary No. 4, Sveriges Riksbank.
- Sveriges riksbank (2010), "The driving forces behind trends in the economy can be analysed using a production function", article in the *Monetary Policy Report* October 2010, Sveriges riksbank.
- Stock, James H., and Mark W. Watson (2006), "Forecasting with Many Predictors", Chapter 10 of *Handbook of Economic Forecasting*, vol. 1, G. Elliott, C. W. J. Granger and A. Timmermann (eds.), Elsevier.
- Stock, James H. and Mark W. Watson (2016), "Dynamic Factor Models, Factor-Augmented Vector Autoregressions, and Structural Vector Autoregressions in Macroeconomics", Chapter 8 of *Handbook of Macroeconomics*, vol. 2A, Taylor, John B. and Harald Uhlig (eds.), Elsevier.

APPENDIX – Data and methodology

Data and methodology

Table 2. Questions included in the updated RU indicator

Questions	Comments
Economic Tendency Survey	
Manufacturing industry	
Shortage of labour	
Capacity utilisation	
Production obstacles other than insufficient demand	
Private service industries	
Shortage of labour	Backcasted with “other business activities” 1996–2003
Can the company increase production with existing resources?	Backcasted with “other business activities” 1996–2003
Production obstacles other than insufficient demand	Backcasted with “other business activities” 1996–2003
Trade sector	
Shortage of labour	
Building & construction	
Production obstacles other than insufficient demand	Backcasted with a dynamic factor model 1996Q1–1998Q2
Purchasing Managers’ Index	
Delivery times in the manufacturing industry	

Note. Seasonally adjusted data. Data from the National Institute of Economic Research is in quarterly frequency, data from the purchasing managers’ index in monthly frequency. “Production obstacles other than insufficient demand” has been created from the question of what hinders companies’ production. It uses the response options “insufficient demand” and “none” and is expressed as “100 - insufficient demand - none”. More information on this series, and how the break in the time series has been handled, can be found further down in the appendix.

Table 3. Variables in the new labour market indicator

Variables	Comments
Economic Tendency Survey	
Shortage of labour in the business sector	
Swedish Public Employment Service (PES)	
Unemployment	Both open unemployed and participants in labour market programmes. Inverted.
Job deficit	(Newly registered vacancies - Unemployed according to PES) / Number in the labour force according to PES (which in turn comes from RAMS)
Statistics Sweden	
Unemployment 25–54 years, LFS	Inverted
Employment rate 15–34 years, LFS	
Recruitment time, KV	De-trended
Vacancy rate, KV	De-trended
Job deficit, KV and LFS ¹¹	(Job vacancies according to KV - Unemployed 15–74 years old according to LFS) / Number in the labour force 15–74 years old according to LFS
Percentage of underemployed, 15–74 years, LFS *	Underemployed/Total employed Time series break , included when underemployed have been linked
U6, 15–74 years, LFS *	(Unemployed + Underemployed + Latent job seekers) / (Labour force + Latent job seekers) Time series break , included when latent unemployed and underemployed have been linked.

Note. Seasonally adjusted data. Own seasonal adjustment of newly registered vacancies according to PES, unemployment 25–54 according to LFS, employment rate 15–34 according to LFS, underemployed according to LFS, latent unemployed according to LFS, recruitment time and vacancy rate. RAMS refers to register-based labour market statistics and PES refers to the Swedish Public Employment Service. The de-trended series are created with an HP filter, with a very high lambda (lambda = 50 000) so that the series is not revised too much when new outcomes are published. An AR forecast 6 years ahead is also estimated for the trending variables in an attempt to minimise endpoint problems in HP filtering.

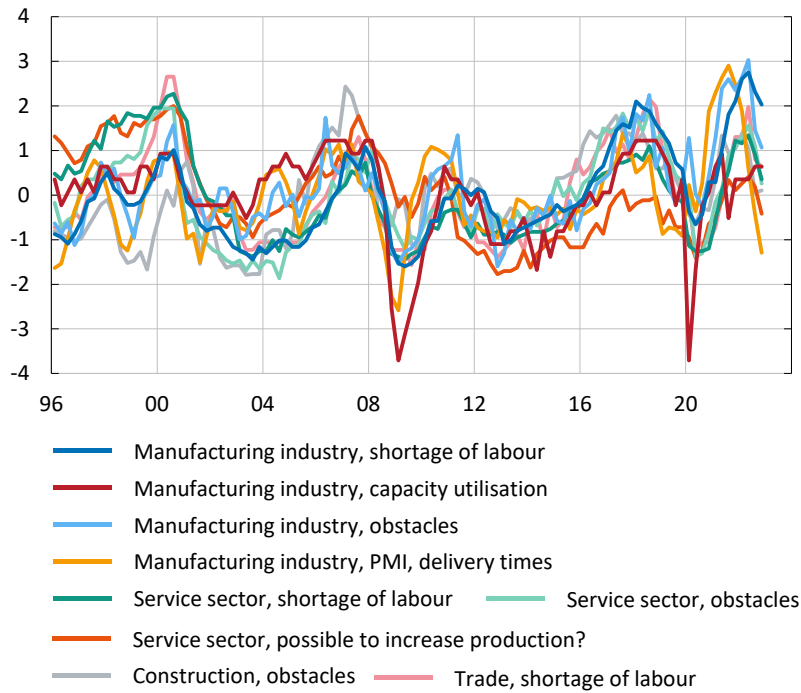
*Since there is a time series break in underemployed and latent job seekers, the series based on these are not yet included in the LM indicator, but historically there has not been a huge difference when they are included (see Figure 8).

Underlying data in both indicators follow similar cyclical patterns, but the spread has been large at different points in time (see Figure 5 and 6). Having a measure that captures common movements may therefore be advantageous. Because even if it may be clear in retrospect which overall economic picture the measures together paint, the spread of the measures may make the assessment more difficult when assessing the situation in real time.

¹¹ A measure often used to indicate labour market tightness is the number of vacancies per unemployed person. However, there is a trend in that time series. Instead of de-trending the series with an HP filter, the variable is therefore formulated as the number of job vacancies not covered by the number of unemployed, as a share of the labour force. There is no trend in that time series.

Figure 5. Data included in the new RU indicator

Standardised data, mean = 0, and standard deviation = 1

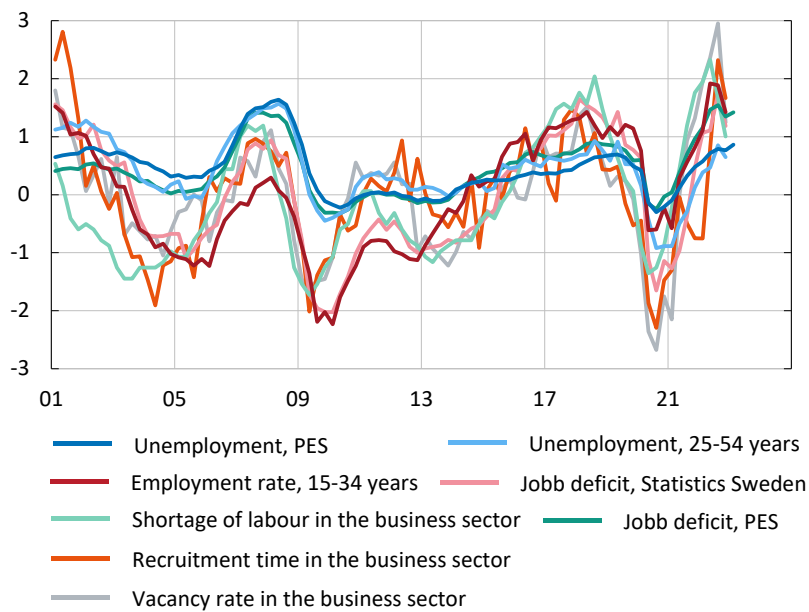


Note. More information on data transformations can be found in Table 2.

Source: National Institute of Economic Research and Sif/Swedbank.

Figure 6. Data included in the LM indicator

Standardised data, mean = 0, and standard deviation = 1



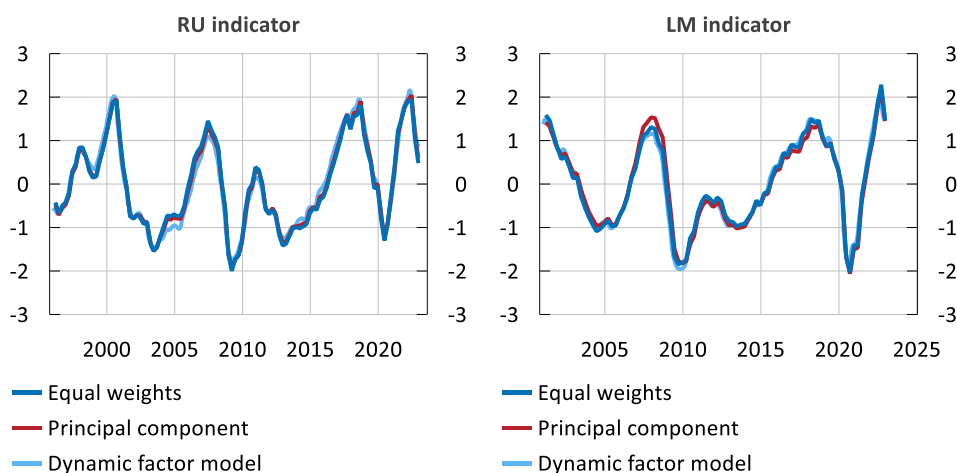
Note. For more information on data transformations see Table 3.

Sources: Swedish Public Employment Service, National Institute of Economic Research, Statistics Sweden and the Riksbank.

It does not matter which method I use to compile the indicators (see Figure 7). I have therefore compiled the indicators with equal weights, as this method is the easiest to see through.

Figure 7. Different methods for creating the indicators

Standardised data, mean = 0, standard deviation = 1

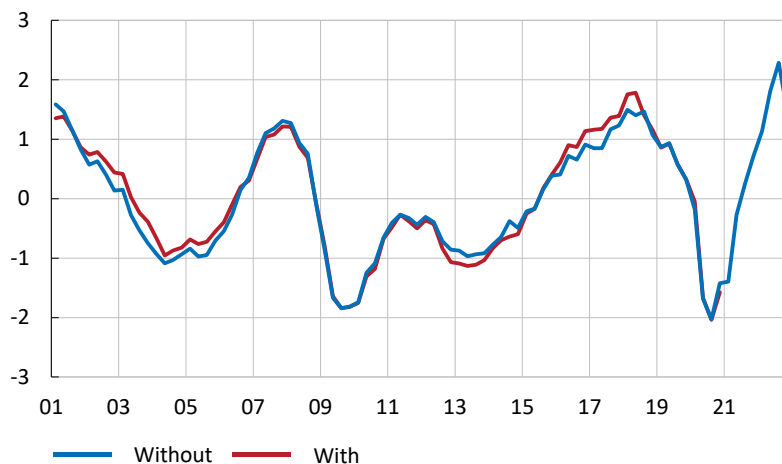


Source: The Riksbank.

There are small differences in the labour market indicator when U6, which is a broader measure of unemployment which also includes underemployed and latent job seekers, and the share of underemployed people is included. There is a slightly deeper decline in 2013 and a higher peak in 2016-2018 when they are included (see Figure 8).

Figure 8. Labour market indicator with and without U6 and underemployed persons

Standardised data, mean = 0, standard deviation = 1



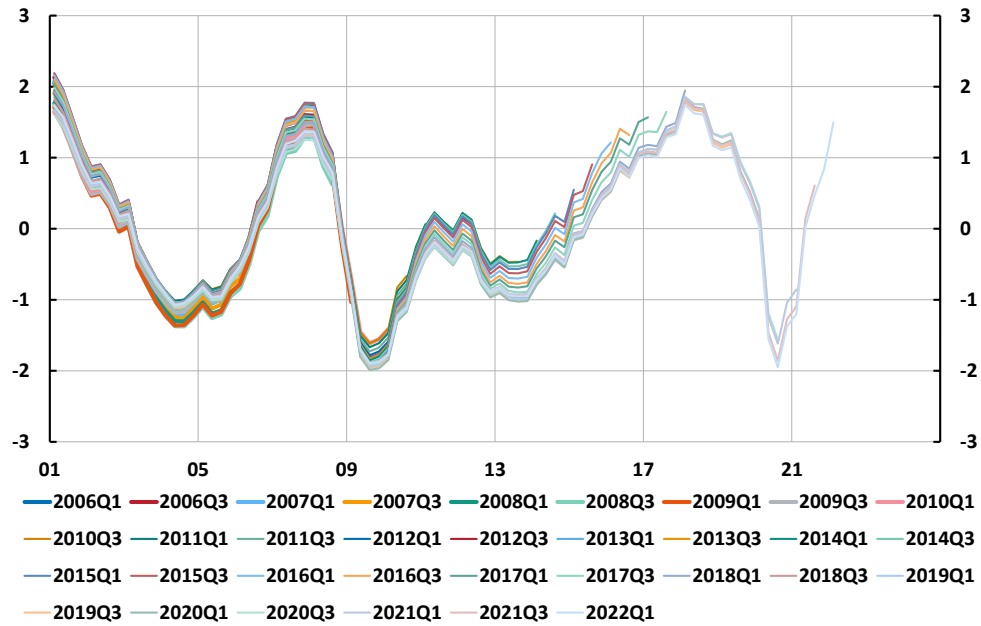
Source: The Riksbank.

As the RU indicator consists only of survey data that has been weighted together, it will only be marginally revised in the context of new data releases, when the seasonal

adjustment of the data changes and the normalisation of the series and the overall indicator is updated. In contrast, the labour market indicator will be revised more, as two of the included series are HP filtered (see Figure 9).

Figure 9. Revisions to the labour market indicator

Standardised data, mean = 0, standard deviation = 1



Source: The Riksbank.

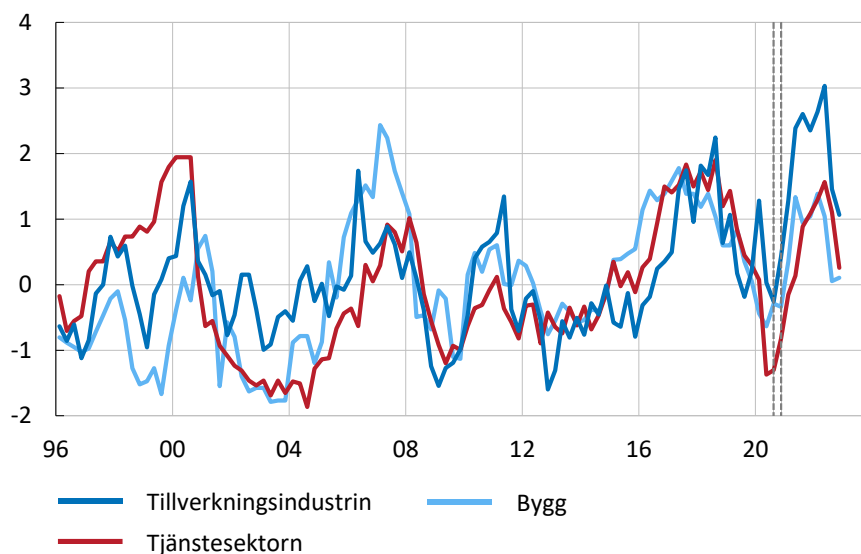
Main obstacles to production

The National Institute of Economic Research (NIER) reformulated its question on main obstacles in the Economic Tendency Survey. Because of this, a break in the time series has arisen which they do not intend to link. It was due to this time series break that the Riksbank stopped publishing the previous RU indicator. In this section, I explain how the time series break occurred and how I have handled the break so that the question can still be included in the new RU indicator.

In January 2022, the question went from being answerable with one option (“what is the main obstacle?”) to being answerable with multiple options (“what are the obstacles?”). For manufacturing and construction, in October 2021, the response options “lack of machinery and plant capacity”/“lack of machinery capacity and/or building materials” was also changed to “lack of materials and/or equipment”. This may have reduced the number of “other” responses in favour of “lack of materials and/or equipment”. The question about obstacles is very useful because it captures parts of the production capacity of companies that other questions do not. It would therefore be advantageous if I could use it in the indicator, despite the break in the time series.

Diagram 1. Obstacles not due to insufficient demand

Standardised data, mean = 0, standard deviation = 1



Note. The series have been created from the question on what hinders business production, using the response options “insufficient demand” and “nothing”. The question is expressed as “100 - insufficient demand - nothing”. The broken horizontal lines indicate when the questions were changed, i.e. when the Economic Tendency Survey was published in 2021 Q3 and 2021 Q4.

Sources: The National Institute of Economic Research and the Riksbank.

It can be argued that when companies state that production is limited by insufficient demand, there are no other factors that limit production at the same time. If demand is non-existent, it is unlikely that there is a simultaneous shortage of labour or materials. The same applies when respondents state that nothing hinders their production. It can therefore be assumed that these response options are not affected by the break in the time series. Subtracting these from 100 provides a measure that indirectly captures labour shortages and shortages of materials, premises, equipment or all three. However, the measure will also include the response options “financial constraints” and “other”, as well as “weather” for construction.

While shortages of materials or premises, financial constraints, other factors and weather do not in themselves capture the amount of unutilised resources in the economy, they can tell us something about companies’ production possibilities in the short term. For example, companies’ production was limited by guidelines and illness during the pandemic and they were therefore prevented from producing as much as before. If the Riksbank’s assessed GDP trend had not been sluggish, it should also have been lower during the pandemic to take into account the fact that companies could not actually produce to the same extent. The GDP gap would then not have been as low. The obstacle question captures such factors.

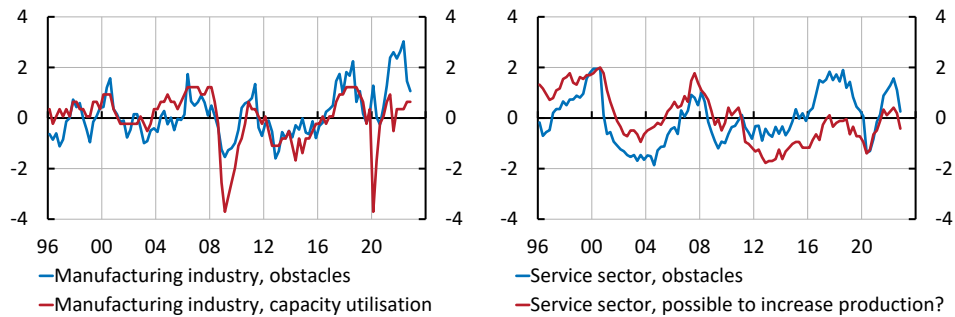
When companies’ production is hindered by a lack of materials or premises, financial restrictions or other factors, it can also mean that companies’ capacity utilisation is dampened. In this event, the obstacle question will indicate that resource utilisation is high, while capacity utilisation will indicate that there is substantial spare capacity. In

autumn 2021, it happened that the obstacles question increased at the same time as capacity utilisation fell (see Figure 10). An RU indicator with only these two questions would have fallen in between. Whether this is correct or not is debatable, but this is a clear example that it is always important to look at many measures at the same time. The divergence between the obstacle question and capacity utilisation illustrated companies' production constraints.

It is therefore not entirely clear whether the question really captures the number of unutilised resources. However, it contains important information about the short-term production possibilities of the companies, which is why it is included.

Figure 10. Obstacles and capacity utilisation in industry and services

Standardised data, mean = 0, standard deviation = 1



Note. "Service sector, possible increase in output?" is inverted.

Sources: The National Institute of Economic Research and the Riksbank.



SVERIGES RIKSBANK

Tel +46 8 - 787 00 00

registratorn@riksbank.se

www.riksbank.se

PRODUCTION SVERIGES RIKSBANK