SPEECH

■ Monetary policy and unemployment – a constantly topical debate[*]

High unemployment implies the failure of the welfare state. In Sweden, unemployment increased strongly in conjunction with the crisis of the 1990s, following which it has never fallen below 6 per cent. In this situation, it is important to use every means to improve conditions on the labour market and also to debate the role that could be played by monetary policy in the fight against unemployment. But it is equally important that this debate is realistic. From time to time, we have to remind ourselves that the possibilities monetary policy has in this area have their limits. This is primarily a matter of influencing the more short-term area of unemployment, which depends on economic activity, via effects on total demand in the economy. The area of unemployment that also exists in balanced economic cycles is harder to deal with. This unemployment is usually called long-term unemployment or equilibrium unemployment. The degree of equilibrium unemployment is highly dependent on how well the labour market is functioning, which is affected by policy areas other than monetary policy. Placing an excessive focus on monetary policy in this context could easily lead to the underlying problems on the labour market – and the solutions to them – not receiving the discussion they deserve.

The target of monetary policy is to stabilise inflation at around two per cent. Without prejudicing this target, monetary policy should also strive to stabilise production and employment around long-term sustainable development paths.[1] Put very simply, this is a matter of trying to steer demand so that

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[1] This is usually called a flexible inflation-targeting policy. The term flexible inflation-targeting policy was introduced by Svensson (1999). The definition of the term entails the central bank minimising a squared loss function consisting of both inflation's deviation from target and output's deviation from potential output. A central bank that only considers inflation's deviation from target is said to be conducting a strict inflation-targeting policy.

resource utilisation is balanced but inflation does not deviate too far from two per cent. It's easy to describe, but it's a difficult balancing act in practice.

Unlike inflation, resource utilisation is not observable; instead, its level must be estimated. The Riksbank has put a lot of work into estimating various so-called gap measures that show how strained resource utilisation is, compared with a normal situation (examples of these include the GDP gap, the hours gap and the unemployment gap). Using these various measures as a basis, we make an overall assessment of resource utilisation. What these gap measures have in common is the comparison of the various quantities actually measured to unobservable quantities. For example, the unemployment gap is calculated by comparing actual unemployment to estimated equilibrium unemployment. So all of these calculations are uncertain. For the unemployment gap to be a practicable measure in monetary policy requires that the cyclical part of unemployment (which can be influenced by monetary policy) can be distinguished, with a reasonable degree of certainty, from equilibrium unemployment (which depends on how the labour market functions). As will be seen, this is not a trivial problem.

In my speech today, I will discuss resource utilisation: specifically what is known as the unemployment gap and its role in monetary policy decision-making. Recently, there has been frequent discussion of the unemployment gap in monetary policy contexts, but this is not a new discussion.[2]

For my part, I'm extremely doubtful about placing too much importance on the unemployment gap when taking monetary policy decisions in the here and now. It may look easy in theory; but in practice, it is not. My view is that we should continue to use several different measures of resource utilisation instead. Taken together, these can serve as guidance for monetary policy. But I do not consider that there is a single measure that can or should be held up as the only measure that we should adjust monetary policy to. At least as important as the various estimated gap measures are survey-based measures of resource utilisation such as capacity utilisation in the manufacturing industry and labour market shortages, as well as indicators from the traditional labour market statistics. The labour supply holds a central position among these indicators. At this point, I would like to point out that it is important to not just see the labour supply as a homogenous aggregate. Equilibrium unemployment is influenced by how well the match between jobseekers and job vacancies works. And the conditions for this matching are influenced by factors such as the composition of the labour supply, which, in turn, may partly be due to changes in the population structure. I will return to this point later on.

The central message of my speech here today can be summarised as follows: to reduce the risk of going seriously wrong with monetary policy, I consider it important not to place any blind faith in the exactness of the gap measures we use, be this the unemployment gap or any other measure. So I have nothing

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[2] See, for example, "Monetary policy and unemployment" in *Economic Review* 2005:4. In this article, Bergström and Boije discuss the problems of using unemployment as an indicator of resource utilisation. Rogerson (1997) has reviewed the literature covering so-called equilibrium unemployment and points out that the meaning of this term is extremely unclear. Rogerson also points out that there are many different definitions of equilibrium unemployment in the theoretical literature and that their significance varies depending on which theoretical model is being used. The question of how central banks can take real economic considerations into account has also recently been discussed by the Centre for Business and Policy Studies' Economic Policy Group.

against the fact that we *use* different measures; rather, I am concerned about *how* we use them.

Let me now discuss the problem of calculating the unemployment gap, which, as I was saying, is produced by comparing actual unemployment with equilibrium unemployment. I will start by discussing a couple of aspects of the definition of actual unemployment.

Actual unemployment

Official unemployment in Sweden is measured by Statistics Sweden's monthly labour force survey (AKU), in which a sample of the population in the age group 15–74 is interviewed. The unemployed are defined as those who are out of work and who, on the date of the survey or in the previous four weeks, have looked for work that they would be able to take up immediately or within the next 14 days.[3]

The Swedish Public Employment Service also reports unemployment figures every month on the basis of the people registered at its offices. Each month, the Swedish Public Employment Service publishes figures showing what is known as total unemployment. This includes both the openly unemployed and persons in labour market programmes with activity grants.[4]

However, it is not certain how actual unemployment is to be defined if the intention is to measure the spare capacity of the labour market. Youth unemployment can be taken as an example. In October 2007, Statistics Sweden went over to reporting unemployment according to an internationally-established standard. Full-time students who have looked for work and could have worked were now reported as unemployed. This change meant that unemployment in the age group 15–24 increased strongly, even though this group's main activity was studying. The number of people unemployed in relation to the number of people in the labour force in the category young people was about 25 per cent in 2010. Using the previous reporting method, unemployment would have been 15 per cent.[5] For total unemployment, the changed method meant that measured unemployment increased by about 2 percentage points.

Neither is it clear how individuals participating in labour market policy programmes should be classified. For example, individuals obtaining what are known as entry-level jobs, new start jobs or sheltered employment through the Swedish Public Employment Service are counted as employed under Statistics Sweden's classification, while those participating in vocational training courses (for example) are counted as unemployed. These classifications are not self-evident. While attending these programmes, the participants are probably less active in their job-seeking. If an unemployed person stops looking for work while participating in a programme, perhaps we could question whether this person should still be considered to be unemployed.

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[3] The unemployed also includes people who have been offered work starting within three months, assuming that they would have been able to work on the date of the survey or to start within 14 days.
[4] Open unemployment is a definition used by the Swedish Public Employment Service to refer to jobseekers who are actively looking for work, who are able to enter the labour market immediately, and who are not participating in a labour market policy programme.
[5] AKU, 2010.

■ So actual unemployment can be measured in different ways: including or excluding full-time students who are looking for work and can work; including or excluding individuals participating in labour market policy programmes. It is unclear which of these definitions is the most relevant measure of welfare and which measure should be used in the monetary policy analysis.

Covariation with economic activity...

Regardless of how we choose to define and measure actual unemployment, experience shows that it clearly covaries with economic activity, albeit with a certain time lag. At the start of an upturn in economic activity, the number of hours worked and employment normally increase after a time lag, compared with GDP. This is reflected by the increase of output. It is due to companies initially using existing personnel to a greater extent. In downturns, the reverse is common: companies retain their personnel as long as it remains uncertain whether the downturn will be long-lasting, meaning that output temporarily declines. This means that resource utilisation, measured in terms of GDP, can increase or decrease without there being any simultaneous change in unemployment. Neither is it certain, after companies have decided to increase or decrease employment, that this will be reflected by changes in aggregate unemployment. As the size of the labour force also varies, for cyclical reasons among others, the level of unemployment will depend on the extent to which individuals leave, remain in or enter the labour market.

... but the connection is not stable

Monetary policy is forward-looking and must be based on forecasts. The practical conditions for forecasting actual unemployment are made more difficult by changes, over time, in the historical relationship between economic activity and the development of the labour market. During the financial crisis of 2008–2009, the Riksbank was surprised (as were other analysts) to see that unemployment did not increase more, considering the steep fall in output in the Swedish economy. The Swedish labour market coped comparatively well, both in comparison with how it is usually affected by falls in GDP and in comparison with developments in many other countries.[6] The former point is illustrated by Figure 1.

[6] See, for example, the article "The effects of the financial crisis on the labour market – a comparison of Sweden, the euro area and the United States", *Monetary Policy Report*, February 2011, and "The relationship between the business cycle and the labour market in Sweden", *Economic Commentaries* no. 2, 2010, Sveriges Riksbank.

Figure 1. Unemployment calculated according to Okun's law[7]

Per cent of labour force
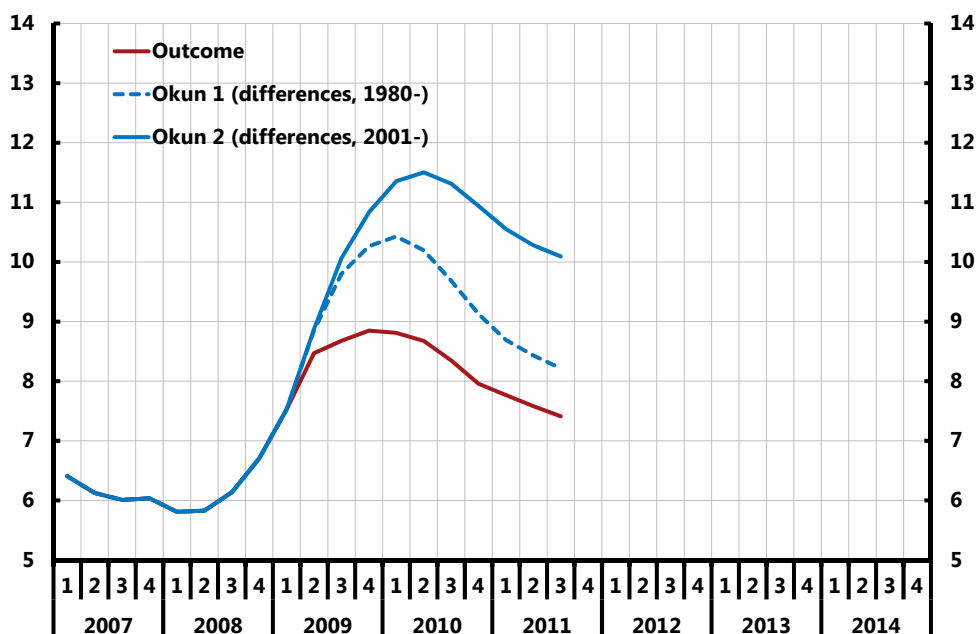
Note: The difference version of Okun's law captures the relationship between GDP growth and the change in unemployment. The figure shows unemployment forecasts based on estimates of this relationship in two different time periods.

Source: The Riksbank

According to the historical relationship between changes in GDP and changes in unemployment, the change in GDP between the first quarter of 2009 and the third quarter of 2011 should have led unemployment to increase by 1.5–2.5 percentage points above the actual increase.

The functioning of the labour market is decisive.

Actual unemployment is not only influenced by economic activity, but also by structural factors that shape the functioning of the labour market. These structural factors influence both the decision to enter the labour market and companies' decisions to hire and fire. Examples of structural factors are the design of the taxation and social insurance systems, competitive pressures in the economy, labour market legislation, the negotiating strength of employers and employees and so on.[8] These are the factors that determine equilibrium unemployment.   So affecting these would require broad-based economic policy measures. Although it is obvious, it is still important to bear in mind that

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[7] Okun's law shows the short-term relationship between the level of unemployment and GDP.
[8] See, for example, Forslund (2008) for a discussion of factors affecting the level of equilibrium unemployment.

monetary policy cannot affect these fundamental conditions for long-term growth and employment.

Breaking down unemployment – a complicated story

On the other hand, however, monetary policy is able to influence the cyclical part of unemployment via effects on the aggregate demand in the economy. In theory, this is a matter of using monetary policy to keep actual unemployment as close to the equilibrium level as possible. In practice, this is difficult, as equilibrium unemployment is not observable but must be calculated indirectly. These calculations are highly uncertain, something which is true of all gap calculations in which various actually-measured quantities are related to an estimated, unobserved quantity. So this also applies to the GDP gap, the hours gap, and so on. But the unemployment gap has an advantage over other gap measures, as the actual statistics are not revised, as is the case with GDP and to some extent the number of hours worked, for example.

Allow me to now discuss this uncertainty when it comes to calculating the labour market gap in a little more detail.

Calculations of equilibrium unemployment

According to a common interpretation, equilibrium unemployment is the unemployment that arises when an economy is not impacted by new shocks or disruptions for a longer period of time and is thus in a state of long-term equilibrium.[9] Equilibrium unemployment is thus independent of economic activity. However, this is a theoretical concept. In practice, the economy is never in a shock-free state in which long-term equilibrium has been achieved.

Assessing the level of equilibrium unemployment depends partly on the theoretical model used as a basis and partly on the calculation methods used. There is no consensus on which method of calculation is best, and this creates uncertainty on the level of equilibrium unemployment. Let me illustrate this with a diagram.

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[9] This state of long-term economic equilibrium is the same as saying that the economy is in a steady state.

Figure 2. Unemployment and model estimates of equilibrium unemployment[10]

Per cent of labour force
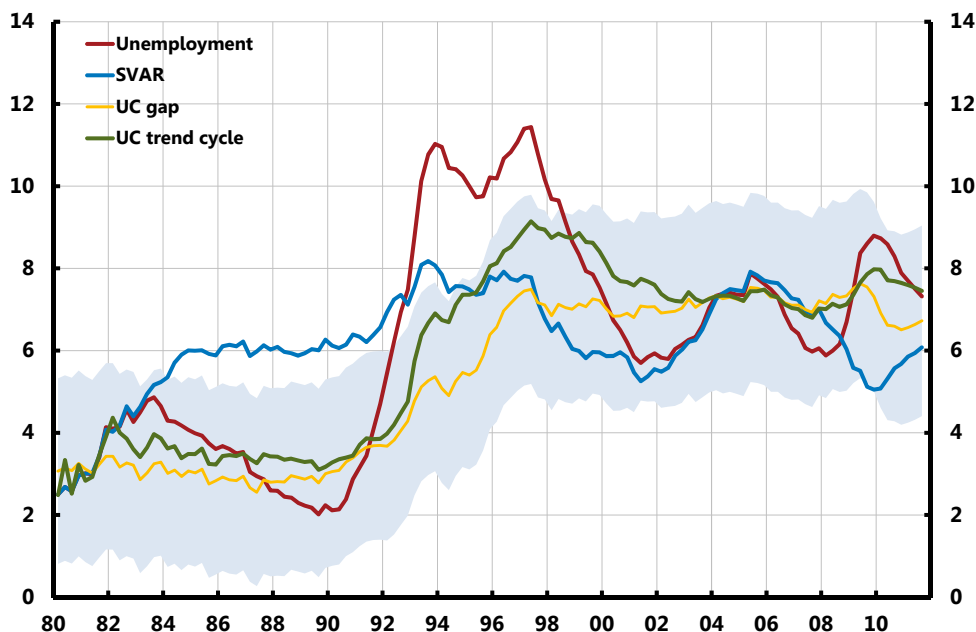
Note: The diagram only shows the so-called point estimate for the SVAR and UC trend cycle models. The uncertainty/error margin associated with these two calculation methods is thus not shown.

Source: The Riksbank

The figure shows how equilibrium unemployment in Sweden has been calculated for the period 1980–2010 using three different methods. The red curve in the figure is actual unemployment. The yellow curve in the figure shows a calculation of equilibrium unemployment using what is known as an unobserved components model. The upper and lower confidence intervals for this calculation method mean that the current level of equilibrium unemployment can be said, with 95 per cent confidence, to lie between just over four per cent and nine per cent. The grey curve shows a calculation using an alternative unobserved components model, while the blue curve is a calculation based on what is known as a structural VAR model, which includes GDP and unemployment. When it is considered that it is unclear which of the three methods of calculation should be used, uncertainty over the equilibrium level will increase. This can be seen from the variation, depending on method, of the estimates of equilibrium unemployment.

So, even though the calculations shown in the figure are based on historical data, the level of equilibrium unemployment cannot afterwards be determined with any degree of certainty. This is because equilibrium unemployment is not observable. Given this uncertainty, it could be asked whether equilibrium unemployment is a stable enough measure to use in the assessment of actual

[10] In Figure 2, NAIRU (Non-Accelerating Inflation Rate-of-Unemployment) has been calculated. The terms NAIRU and equilibrium unemployment are sometimes used as synonyms. There is, however, a theoretical difference. NAIRU is the level of unemployment that is compatible with a stable rate of inflation. The rate of inflation rises when unemployment is below NAIRU and falls when unemployment is higher. This means that, in the short term, NAIRU may vary with economic activity, unlike equilibrium unemployment. However, over the longer term, NAIRU and equilibrium unemployment coincide.

resource utilisation. The fact that estimates of equilibrium unemployment vary heavily over time and depending on the calculation model used provides a good illustration of the risk in having blind faith in the exactness of the estimated unemployment gap.

This uncertainty means that deciding which view to take of long-term unemployment is always, ultimately, a matter of judgement. Figure 3 shows the Riksbank's present assessment of equilibrium unemployment, together with the latest assessments from the National Institute of Economic Research and the Ministry of Finance. Unlike in Figure 2, this is a matter of more long-term calculations of equilibrium unemployment.

Figure 3. The level of equilibrium unemployment according to the Riksbank, the National Institute of Economic Research and the Ministry of Finance

Per cent
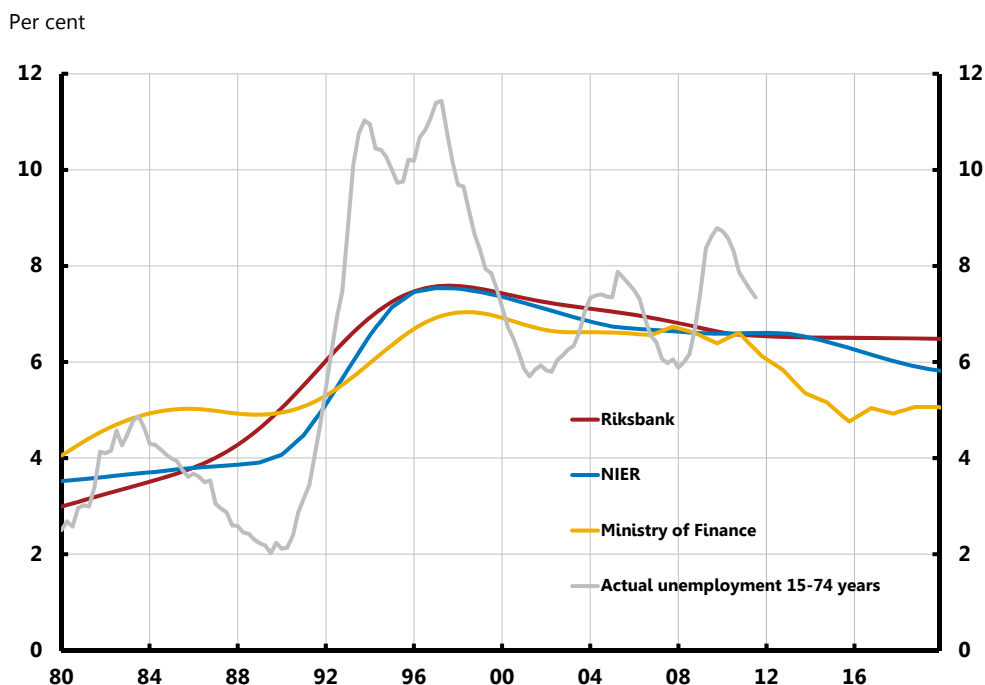
Note: With regard to statistics on actual unemployment pre-1987 data is spliced by the Riksbank.

Sources: The Riksbank, Ministry of Finance, National Institute for Economic Research and Statistics Sweden

As the figure shows, assessments of the level of equilibrium unemployment for the last four years (2008–2011) are relatively similar. The Ministry of Finance assumes that equilibrium unemployment will decrease strongly in the years ahead. The difference in the assessments is primarily because the National Institute of Economic Research and the Riksbank do not expect the economic policy to have such large effects on equilibrium unemployment.

Good guidance for monetary policy?

So serious attempts at calculating equilibrium unemployment have been made, but these have concluded in different assessments. Nevertheless, it is important that we try to gain an idea of equilibrium unemployment. Not least is this important in a time when reforms have been adopted that should (as most

analysts agree) lead equilibrium unemployment to decrease. But I am extremely doubtful as to whether measures of equilibrium unemployment should be given too prominent a role in practical monetary policy. It seems simple in theory; but, in practice, it is not. Even if we could be more certain of the level of equilibrium unemployment further ahead, this would not give us such strong guidance for monetary policy decisions in the here and now. This can be illustrated by the following diagram.

Figure 4. Theoretical sketch, adjustment to new equilibrium unemployment

Per cent
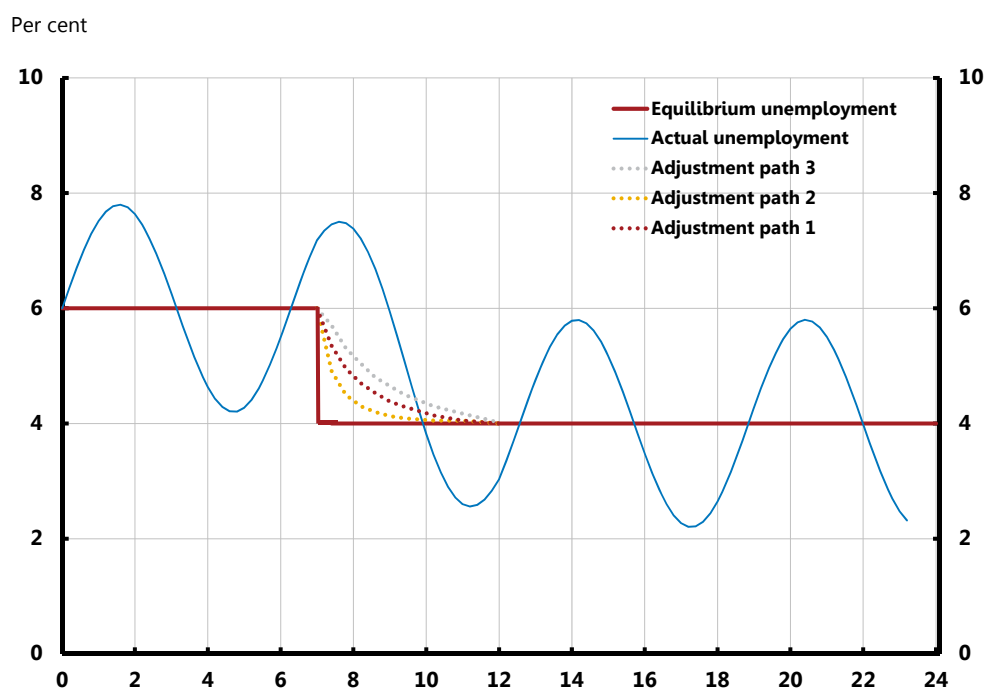
Source: The Riksbank

Figure 4 illustrates three different adjustment paths to a new level of equilibrium unemployment (broken red, yellow and grey curves) and the variation of actual unemployment around the equilibrium (blue curve). In this example, the economy is assumed to be exposed to a structural change in year seven which decreases equilibrium unemployment from six to four per cent and, five years later, the economy has adjusted to the new equilibrium. Due to various frictions in the economy, such as matching frictions and changeover costs on the labour market, the adjustment to the new equilibrium takes time. Cyclical unemployment is measured by the unemployment gap, which is the vertical gap between actual unemployment and the adjustment path. The figure is thus a schematic illustration of how unemployment adjusts to a new calculated equilibrium. However, in reality, we have no knowledge of how the adjustment to a new equilibrium takes place and how long it takes. The lack of knowledge about adjustment is represented by the three different adjustment paths. We don't know which adjustment path will lead to the new equilibrium, which creates uncertainty about the most appropriate monetary policy during the period of adjustment. Research can give us no guidance here. But, as monetary policy works over the medium term and the economy is regularly subjected to structural changes, this adjustment process is of central importance to monetary policy. So the adjustment process, and our lack of

knowledge about it, illustrates the difficulties in using equilibrium unemployment in practical monetary policy in an economy that is regularly subjected to structural changes that impact the equilibrium.

The labour supply under the magnifying glass

Despite uncertainty over the unemployment gap and the difficulties in using this variable in practical monetary policy, resource utilisation is very important to monetary policy. We at the Riksbank are therefore strongly committed to trying to develop the best possible analyses of resource utilisation. Our approach is to use several different measures and I believe this is wise. To assess developments on the labour market in recent years, the Riksbank closely monitors several types of indicators that together can give us an idea of how well matching and wage formation function. The labour supply plays an important role here. When it comes to the labour supply, my view is that it is extremely important not to regard it as a homogenous aggregate, but instead to analyse it in greater detail, based on the assumption that it consists of a heterogeneous collection of individuals. I consider that this provides better guidance with regard to the scope of monetary policy.

Equilibrium unemployment is influenced by how well the match between jobseekers and job vacancies works. Factors influencing the conditions for this matching include the composition of the labour supply, which, in turn, may be partially affected by changes in the population structure. For example, an increase in the percentage of young and inexperienced people in the labour market can contribute to a deterioration in the matching of job seekers to vacancies. This is because matching seems to work less efficiently for young people, in comparison with unemployed people of other ages. Young people thus have higher unemployment than older people.

Another group that tends to have a higher average rate of unemployment consists of those born abroad. A report by Statistics Sweden (2010) shows that the degree of employment among those born abroad amounts to 58 per cent in Swedish metropolitan regions, which can be compared with 82 per cent for those born in Sweden.[11] However, there are substantial differences between the different groups born abroad. The employment rate is lowest for those born outside of Europe, and lower for those born outside of the Nordic region than for those born in the Nordic countries. It also appears to take a long time before immigrants from other countries manage to enter the Swedish labour market. This means large welfare losses for both the individual and Swedish society, and that a well-needed injection of resources to the Swedish labour market risks being lost. Integration work is therefore important to turn this trend around.

Integration work should emphasise the importance of education as there has been a large immigration of groups lacking basic education. The possibilities to find work are affected to a great extent by the level of education the job seeker has. Upper-secondary school education is usually a basic requirement when recruiting staff and, according to the Swedish Employment Service, most jobs that do not require an upper-secondary school education have disappeared forever from the Swedish labour market. A worrying development is that the

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[11] See Statistics Sweden's report "Integration – a regional perspective", 2010.

■ percentage of unemployed with only secondary school education has increased substantially in the age groups below 35 years. This is because a large percentage does not obtain complete grades at upper-secondary school.

So it is not surprising that the Swedish Public Employment Service points to the fact that there has been a rapid inflow to the labour force in recent years of people in groups that have difficulty finding jobs quickly. This increase is partially linked to people being transferred from the Social Insurance Office to the Swedish Public Employment Service. At the same time, the Swedish Public Employment Service has been given the main responsibility for people who have immigrated to Sweden. The so-called vulnerable groups, which according to the Swedish Public Employment Service will have difficulty finding work, include, for instance, young people with little education and people born outside of Europe.

As shown in Figure 5, the percentage of people registered as unemployed and belonging to vulnerable groups rose in 2008 and 2009. This percentage has since remained at a level that is much higher than for groups with a stronger position.

Figure 5. Total unemployment broken down into vulnerable and non-vulnerable groups

Percentage of register-based labour force, seasonally-adjusted and trend-adjusted statistics
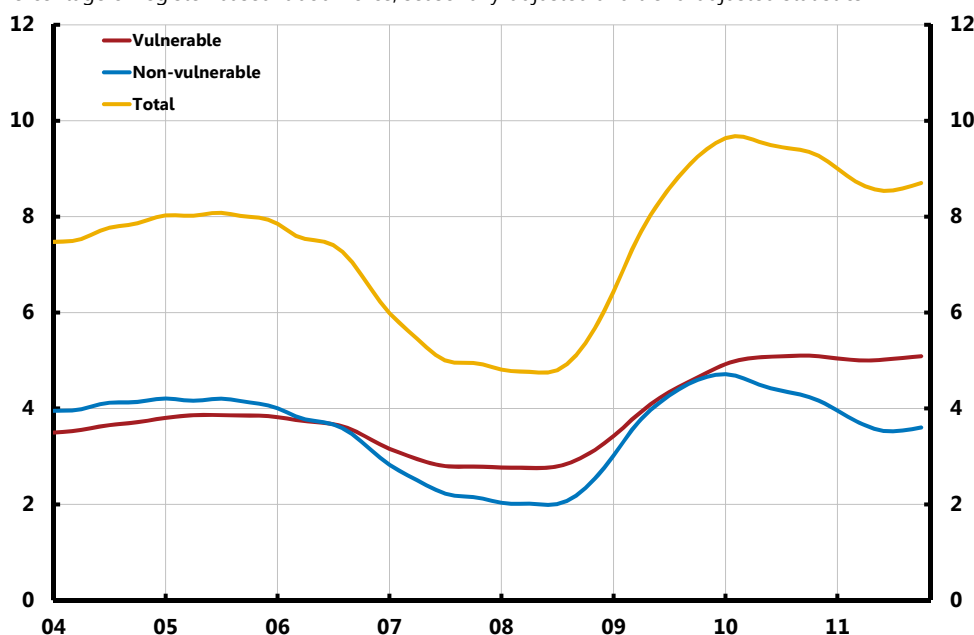
Note: The group of vulnerable people includes those with only secondary-school level education, those in the age range 55–64, those born outside Europe, and those with disabilities.

Source: Swedish Public Employment Service

Despite the recovery in economic activity in 2010 and 2011, the percentage of employed in the most vulnerable groups thus hardly declined at all. Almost 60 per cent of the total number of persons registered as unemployed belongs to groups in the labour market that experience difficulty finding jobs quickly. In October 2011, the number of persons registered as unemployed in the groups regarded as vulnerable amounted to 220,000 (of a total of 372,000 persons registered as unemployed), which is almost double the amount in 2008 (an

increase of 100,000). A large number of the persons registered as unemployed also have long periods without work behind them. One in four people has been without work for more than three years of the past ten years. As the matching for vulnerable groups appears to function poorly and there has been a rapid inflow in recent years to the labour force of people from groups that have difficulty getting jobs quickly, this is having a more long-term impact on unemployment and is thus also impacting various measures of equilibrium unemployment.

It means that a change in the composition of the labour supply could lead to substantial changes in equilibrium unemployment and resource utilisation. When we try to assess resource utilisation, we therefore need to take into account the heterogeneity of the labour supply and expected changes in the composition of the labour supply.

Concluding thoughts

What I have discussed today points, as I see it, to a general truth; namely that many apparently simple and straightforward concepts are suddenly revealed, in a confrontation with reality, to be much more complicated. We have an official measure of unemployment, but even here there is reason to reflect on what this measure says about the amount of spare capacity in the labour market. Calculating equilibrium unemployment after the fact is difficult and requires a number of assumptions. Serious attempts have been made, but as shown, they have had varying results.

At the same time, monetary policy is forward-looking and is thus guided by forecasts of economic development. However, assessing the level of equilibrium unemployment in several years is even more complicated. And, as I mentioned earlier, even if we could know what the level of equilibrium unemployment would be further ahead, this would give us no guidance for monetary policy in the here and now. The economy is regularly subjected to structural changes affecting equilibrium unemployment. And we have limited knowledge of how the adjustment from one equilibrium rate to another occurs, or how long it takes. This means that using equilibrium unemployment in practical monetary policy is not uncomplicated. It is therefore important to closely monitor all of the statistics that reflect conditions on the labour market, which we already do.

Monetary policy can primarily affect unemployment in the short term, via aggregate demand. Here I can mention that several debaters have previously claimed that an incorrect balance in monetary policy has made a significant contribution to the negative developments in the labour market. Naturally, we should not conduct a monetary policy that leads to demand being unnecessarily low and to unemployment becoming higher than it would have been because we single-mindedly react to the risk of inflation rising. If we were to systematically conduct monetary policy in this way, we could be accused of contributing to the persistency of unemployment.[12] At the same time, it is important that we maintain the credibility of our inflation-targeting policy.

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[12] The concept of persistency means that unemployment tends to remain at a higher level after recessions or rapid structural transformations and then slowly adjust towards lower, more normal levels.

Ultimately, it is a question of actually delivering an inflation rate close to the target, seen over a longer period of time.

If one looks at what is known as CPIF inflation, which excludes the effects of interest rate adjustments, this averages 1.8 per cent from the beginning of 2000 to the end of 2011. These statistics do not indicate that the Riksbank one-sidedly reacts to an upside inflation risk. The periods when inflation has deviated from the target have had their explanations. One example of this is the period at the beginning of the 2000s when productivity rose substantially and unexpectedly at the same time as import prices fell. We, like all other analysts, overestimated inflation in our forecasts at that time. With hindsight, the interest rate could have been somewhat lower. But you don't have the benefit of hindsight in advance.

The Riksbank plays an important role in stabilisation policy, not least given that fiscal policy decisions have longer lead times and therefore risk coming at the wrong part of the economic cycle. But, at the same time, monetary policy cannot fine tune the economy either; we like all others have incomplete knowledge of the starting situation in the economy and we must base our decisions on forecasts. These forecasts are made more difficult by the continual revision of economic statistics. To reduce the risk of major errors in monetary policy, it is important to bear this in mind when making decisions, and not to have blind faith in the exactness of the measures we use.

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