## A LONGER-TERM PERSPECTIVE ON STRUCTURAL UNEMPLOYMENT IN THE EURO AREA

In the economic literature, several attempts have been made to measure structural unemployment. One measure is the non-accelerating inflation rate of unemployment (NAIRU). This has been defined as the level of the unemployment rate which does not exert pressure on inflation.[1] This box aims to provide a brief overview of developments in the NAIRU for the euro area and the largest euro area countries.

The NAIRU is not directly observable and different approaches have been proposed to estimate it. In the past, the NAIRU was often assumed to be approximately equal to the long-run average of the unemployment rate. However, it was later recognised that the NAIRU may change over time, and therefore more elaborate methods were adopted to estimate it. These range from the estimation of the trend in the unemployment rate, for example by calculating moving averages, to approaches which explicitly take into account the relationship between the unemployment

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1 For a discussion of the concept of the NAIRU and the role it has played in macroeconomic analysis see for example L. Ball and N. G. Mankiw (2002): "The NAIRU in Theory and Practice", *Journal of Economic Perspectives*, Vol. 16, No 4, pp. 115-136.

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rate and inflation. This latter method, also known as the "direct" approach to measuring the NAIRU, is currently the most commonly used. It is based on a relationship between changes in the unemployment rate and inflation, often known as the Phillips curve. Occasionally, the relationship modelled is between the unemployment rate and wage inflation, as in the original contributions from A. W. H. Phillips, in which case the structural unemployment rate estimated is labelled the "non-accelerating wage inflation rate of unemployment" (NAWRU). The estimation of the NAIRU (or NAWRU) via the direct approach requires the use of advanced econometric techniques such as the Kalman filter.[2]

Estimates of the NAIRU can play a role in various contexts. In particular, they are sometimes used to analyse the sources of inflationary pressure. However, a number of empirical studies have indicated that the measurement of the NAIRU is rather imprecise and that the degree of uncertainty is particularly marked for real-time point estimates (i.e. current estimates for the ongoing period).[3] As a result, the usefulness of NAIRU estimates for regular inflation analysis is relatively limited. Nevertheless, they can provide information regarding longer-term trends.

**Evidence on long-run NAIRU developments in the euro area**

Chart A shows the latest estimates of the euro area NAIRU (or NAWRU) by the European Commission, the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD). While significant variation can be observed among the estimates during the 1980s and 1990s, there seems to be a broad consistency as regards long-run trends. In particular, after increasing from the 1970s onwards for around two and a half decades, the euro area NAIRU appears to have gradually declined from the mid-1990s. Internal estimates by ECB staff using similar estimation methods are also in line with this.[4]

Estimates by international institutions suggest that the euro area NAIRU currently stands at a level slightly above 8%. The NAIRU is therefore estimated to be below the current unemployment rate, which is slightly below 9%. However, the uncertainty of NAIRU estimates, particularly in real time, is illustrated by the revisions made since 2001. For example, the IMF estimates have been revised upwards on average by around 0.7 percentage point per year (see Chart B). Revisions by the Commission and the OECD have been of a smaller magnitude but are still significant. These revisions suggest that real time estimates should always be treated with considerable caution.
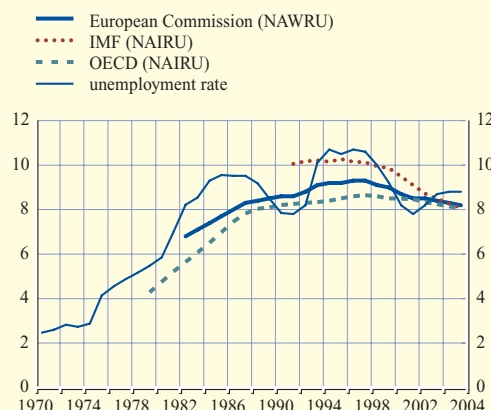
2  For a more detailed discussion see for example S. Fabiani and R. Mestre (2000): "Alternative measures of the NAIRU in the euro area: estimates and assessment", ECB Working Paper No 17 and S. Fabiani and R. Mestre (2004): "A system approach for measuring the euro area NAIRU", *Empirical Economics*, 29(2), pp. 311-341 (also published as ECB Working Paper No 65, 2001).
3  See for example the evidence reported in D. Staiger, J. Stock and M. Watson (1997): "How Precise are Estimates of the Natural Rate of Unemployment," in C. Romer and D. Romer (eds.) *Reducing Inflation: Motivation and Strategy*, University of Chicago Press, 1997.
4  For internal analysis various approaches are used, including versions of the production function approach described in T. Proietti, A. Musso and T. Westermann, "Estimating potential output and the output gap for the euro area: a model-based production function approach", EUI Working Paper ECO 2002/09 and growth accounting exercises similar to that described in A. Musso and T. Westermann, "Assessing potential output growth in the euro area – a growth accounting perspective", ECB Occasional Paper No 22, January 2005.

(percentages of the labour force)

—— European Commission (NAWRU)
•••••• IMF (NAIRU)
– – – OECD (NAIRU)
—— unemployment rate

(latest estimates minus real-time estimates; percentage points)

■ European Commission (NAWRU)
▦ IMF (NAIRU)
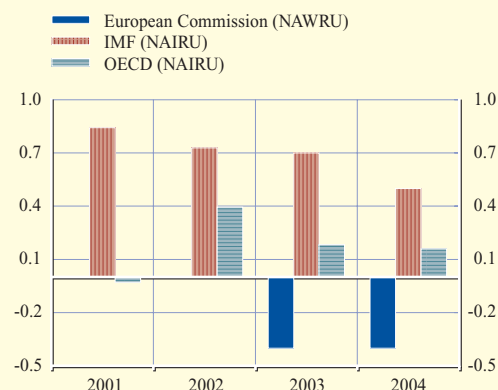▬ OECD (NAIRU)

Sources: European Commission, IMF and OECD.
Note: The euro area unemployment rate before 1991 excludes the former East Germany.

Sources: ECB calculations on the basis of data from the European Commission, IMF and OECD.
Note: Euro area NAWRU estimates from the European Commission are not available for 2001 and 2002.

Various studies have shown that the increase in the NAIRU from the 1970s to the mid-1990s largely reflects the interaction of adverse shocks and rigid labour market institutions in most euro area economies, which led, following a sequence of oil price shocks, to ever rising structural unemployment. The more positive developments in the past ten years have been attributed above all to the impact of labour market reforms implemented in some euro area countries. [5]
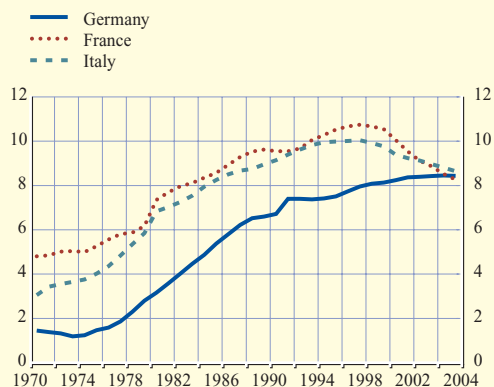
Indeed significant differences at the country level indicate that country-specific factors have been very important in shaping unemployment trends. Among the five largest euro area economies, available estimates suggest an increase in the NAIRU (or NAWRU) from the early 1970s to the mid-1990s in all countries except the Netherlands (see Charts C and D). From the mid-1990s to 2004, by contrast, the NAIRU is estimated to have decreased in all these countries with the exception of Germany, where it rose. These different dynamics probably reflect the varying extent and timing of the implementation of reforms in the labour market. The case of the Netherlands, which introduced significant reforms during the 1980s, suggests that much can be achieved through reforms to reduce the structural unemployment rate substantially. A similar observation can be made concerning developments in the United Kingdom, where estimates of the NAIRU also indicate a significant decline since the mid-1980s.

Looking ahead, there is a pronounced need for structural unemployment to be reduced in the euro area. While several countries have made significant progress towards making their labour markets more flexible and adaptable, in many countries more ambitious labour market reforms

5 See for example O. Blanchard and J. Wolfers (2000): "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence", *Economic Journal*, Vol. 110 (March 2000), pp.1-33 and S. Nickell (2003): "Labour Market Institutions and Unemployment in OECD Countries," *CESIFO DICE Report* 1, No 2 (2003), pp. 13-26.

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**Chart C Average NAIRU/NAWRU estimates[1] for France, Germany and Italy**

(percentages of the labour force)

— Germany
···· France
-- Italy



**Chart D Average NAIRU/NAWRU estimates[1] for the Netherlands, Spain and the United Kingdom**
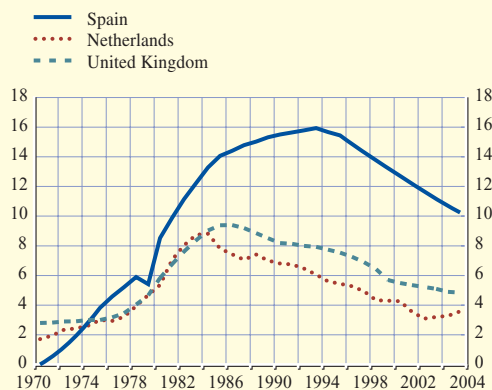
(percentages of the labour force)

— Spain
···· Netherlands
-- United Kingdom



Sources: European Commission, IMF and OECD.
1) Average of estimates by the European Commission, IMF and OECD.

are needed. Only a more determined commitment to structural labour market reforms will allow unemployment rates to be significantly reduced in the years ahead without endangering price stability.