Box 5

LINKS BETWEEN OUTPUT AND UNEMPLOYMENT IN THE EURO AREA

Euro area unemployment exhibited a downward trend from the introduction of the euro until spring 2008, reaching a 25-year low of 7.2% in March 2008. With the onset of the financial turmoil and the associated sharp economic downturn, unemployment began to increase markedly. In August 2009 the euro area unemployment rate stood at 9.6% – the highest rate recorded in a decade. This box looks at the relationship between changes in output and unemployment in the euro area since the introduction of the euro and examines the different experiences of the euro area countries.

The relationship between contemporaneous changes in economic growth and unemployment is widely recorded in the economic literature and is often referred to as "Okun's Law". More of an empirical "rule of thumb" than a relationship grounded in theory, Okun's Law suggests that a 2-3% decline in output is associated with a 1 percentage point increase in the aggregate unemployment rate.[1]

Developments at the euro area level

Chart A plots year-on-year changes in the euro area unemployment rate against contemporaneous annual percentage changes in GDP, on the basis of quarterly data, from the launch of EMU in 1999 to the second quarter of 2009. Focusing on the period up until the third quarter of 2008, the data suggest that a 1% increase (or, conversely, a 1% fall) in euro area GDP has been associated with a contemporaneous 0.4 percentage point decline (or, respectively,

1 Okun suggests a relationship of -0.3 between changes in GDP and unemployment for the United States over the period 1948-60 on the basis of quarterly data. See A.M. Okun (1962), "Potential GNP: Its Measurement and Significance", American Statistical Association, *Proceedings of the Business and Economic Statistics Section*, pp. 98-104.

a 0.4 percentage point increase) in the euro area unemployment rate.[2] This can be seen in the bold trend line in Chart A estimated over this period. The estimated relationship between unemployment and GDP developments would be considerably influenced by including the last three observations, which cover the period during which the downturn was most severe. This would lower the estimated coefficient to 0.3 (as shown by the dotted line in Chart A).

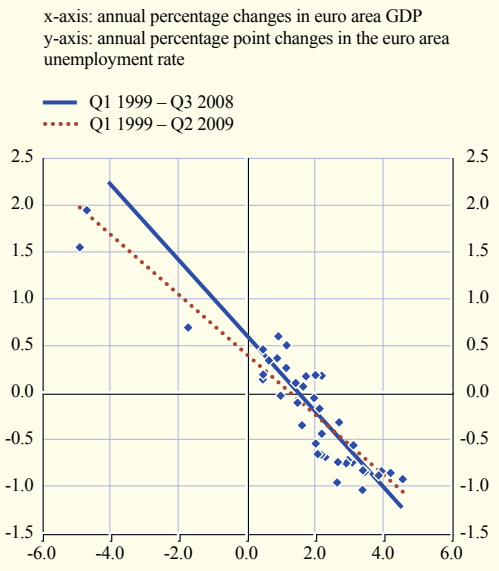
As a consequence of the recent economic downturn, between the second quarter of 2008 and the second quarter of 2009 euro area GDP contracted by around 4.8%, while unemployment rose by 1.9 percentage points. This in part reflects the measures taken in several countries to reduce working hours per employee, although there are considerable differences across the euro area countries.

Developments at the country level

Chart B shows year-on-year percentage point increases in unemployment rates and contemporaneous annual percentage changes in GDP for the euro area as a whole and for the member countries from the second quarter of 2008 to the second quarter of 2009. While Chart B should be interpreted with caution – not least given differences in the speed of adjustment in unemployment across the euro area countries – national labour markets in the euro area appear to have reacted rather differently to the recent downturn. Several euro area economies appear to have experienced relatively modest increases in unemployment despite relatively large contractions in GDP – most notably Germany, Italy and the Netherlands. Others, by contrast, have clearly experienced disproportionately large increases in unemployment rates compared with the euro area average – most notably Spain and Ireland. In relation to the size of

Chart A The relationship between changes in output and unemployment in the euro area since the introduction of the euro

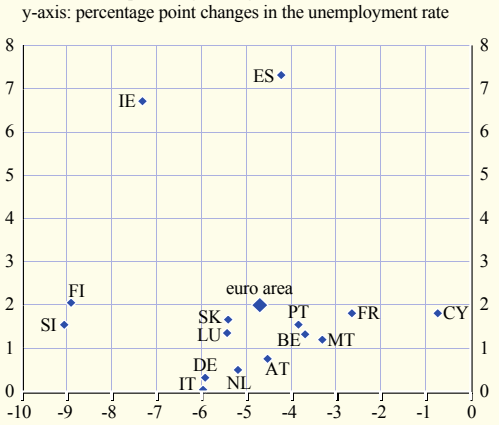
(annual percentage changes; percentage points; quarterly data)



Sources: Eurostat and ECB calculations.

Chart B Output losses and increases in unemployment from the second quarter of 2008 to the second quarter of 2009

(percentage points; percentage changes)



Sources: Eurostat and ECB calculations.
Notes: Data for Greece are not available. Data for Luxembourg relate to the period from the first quarter of 2008 to the first quarter of 2009.

2 A simple ordinary least squares (OLS) regression quantifies the relationship $\Delta U = -0.40\ \Delta GDP\ (-10.4) + 0.60\ (6.4)$ where ΔU represents the absolute annual percentage point change in the harmonised euro area unemployment rate and ΔGDP measures the annual percentage change in euro area GDP; t-statistics are given in parentheses; $R^2 = 0.75$ from 39 observations over the period from the first quarter of 1999 to the third quarter of 2008.

their respective GDP contractions, Cyprus and France have also experienced relatively large increases in unemployment over the period.

There can be many reasons for the diversity observed across countries. Differences in labour market policies and institutions across euro area countries are likely to affect the speed at which labour markets adjust. Varying degrees of employment protection legislation and differences in coverage across countries (i.e. whether such legislation is extended to all workers, or excludes certain groups, such as young workers), variations in the shares of permanent and temporary contracts, as well as differences in policy initiatives designed to deal with temporary output fluctuations (state-subsidised short-time working schemes, social security exemptions for employers, etc.), undoubtedly influence labour market adjustment across countries.[3] Similarly, differences between wage-setting institutions, which influence the rate at which wages can adjust in the face of output shocks, provide further scope for variation in labour market developments. Moreover, evidence suggests that where such institutions reduce labour market flexibility, there may be more persistent effects on unemployment.[4]

Policy-makers in a number of euro area countries have devoted considerable efforts to supporting employment over the course of the recent downturn, making use of a variety of short-term working arrangements. To the extent that such measures hinder the reallocation of workers from less to more productive sectors, or discourage the necessary restructuring of euro area enterprises in the face of new economic challenges, the prolonged use of such schemes may harm the euro area's productivity growth and international competitiveness in the longer term. Therefore, renewed efforts towards further structural reforms in euro area labour markets would help to boost competitiveness and thus improve the longer-term prospects for euro area employment growth. These efforts include: further reforms of employment protection legislation once the economy returns to a steady recovery path, so as to overcome the segmentation of labour markets and aid the sectoral reallocation of workers; reforms of tax and benefit systems, so as to improve incentives to work; and further efforts to enhance the flexibility of wage-setting arrangements.

3 See also the box entitled "Labour market adjustments during the current contraction of economic activity" in the June 2009 issue of the Monthly Bulletin.

4 See O. Blanchard and J. Wolfers (2000), "The role of shocks and institutions in the rise of European unemployment: the aggregate evidence", Royal Economic Society, *Economic Journal*, Vol. 100, pp. C1-33.