Box 3

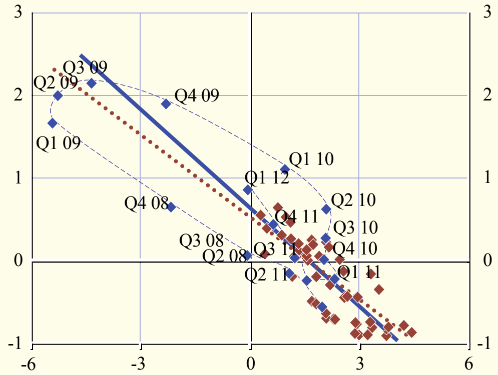
RECENT DEVELOPMENTS IN THE OKUN RELATIONSHIP IN THE EURO AREA

After standing at a 25-year low of 7.3% in the first quarter of 2008, the euro area unemployment rate rose to 10.9% by the first quarter of 2012. This box examines the most recent developments from the perspective of the output-unemployment relationship (Okun's Law) for the euro area as a whole and for the individual euro area countries. It also looks at links between the Okun relationship and wage developments in order to assess the extent to which the unemployment reactions observed since the recent economic and financial crisis reflect varying degrees of wage flexibility across euro area countries.

Okun's Law for the euro area

Okun's Law quantifies the relationship observed between changes in economic growth and the change in the unemployment rate. Chart A plots the Okun relationship for the euro area from the first quarter of 1996 to the first quarter of 2012. From 1996 to the beginning of the 2008-09 recession typical Okun coefficient estimates for the euro area were close to -0.4. However, widespread labour hoarding in a number of euro area countries, partly related to short-time working arrangements, led to a lower responsiveness of unemployment to GDP developments.[1] More recently, at the aggregate euro area level, the responsiveness of unemployment developments to GDP dynamics appears to have returned to pre-crisis levels (see the latest observations in Chart A), with the unemployment rate reacting more strongly to changes in activity. However,

Chart A Okun's Law for the euro area

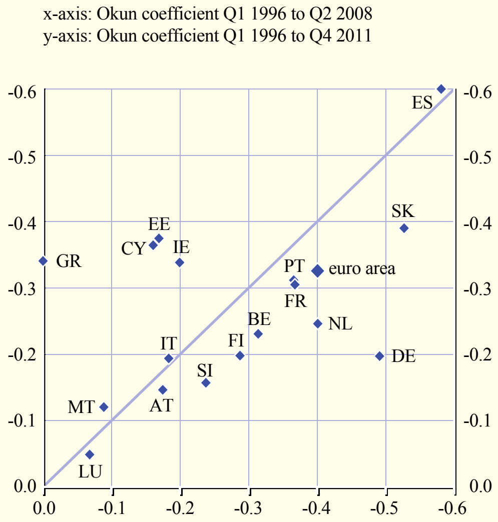


Sources: Eurostat and ECB staff calculations.
Note: The diamonds represent individual observations from quarterly data from Q1 1996 to Q1 2012; the solid blue trend line is estimated on the basis of observations up to and including Q1 2008; the dotted reddish-brown line uses all observations up to Q1 2012.

1 See also the boxes entitled "Back to Okun's Law? Recent developments in euro area output and unemployment", *Monthly Bulletin*, ECB, June 2011, and "Labour market adjustment in the euro area", *Monthly Bulletin,* ECB, March 2012.

developments for the euro area as a whole obscure markedly different unemployment adjustments across countries.

Chart B Recent movements in Okun coefficients



Sources: Eurostat and ECB staff calculations.
Note: Owing to space constraints, the observation for Spain is truncated. It increases from -0.78 for the pre-recession period (Q1 1996 to Q1 2008) to almost unity (-0.98) when the later period (to Q4 2011) is included.

Developments at the country level

The responsiveness of unemployment to GDP developments varies considerably across the euro area countries. Chart B highlights the degree of cross-country variation in the responsiveness of unemployment and illustrates how this responsiveness changed over the course of the crisis. The chart suggests that, prior to the onset of recession in the second quarter of 2008, Greece, Luxembourg, Malta, Estonia, Cyprus, Ireland, Italy and Austria were characterised by relatively low unemployment responsiveness to GDP developments (with estimated Okun coefficients higher than -0.2), while Germany, the Netherlands, Slovakia and particularly Spain exhibited strong and relatively swift unemployment rate reactions to changes in GDP (with estimated Okun coefficients lower than -0.4). In part, these differences are likely to reflect structural labour market reforms undertaken earlier in the decade in the latter economies, including efforts to reform unemployment benefit systems (such as the Hartz reforms in Germany) and the liberalisation of rules governing the use of temporary contracts (which were particularly widespread in Spain).

Countries further from the 45º line (in Chart B) have exhibited a more significant change in the Okun relationship since the onset of the euro area recession, with those above the line demonstrating a marked increase in the responsiveness of unemployment to GDP changes. For some countries – Greece, Cyprus, Ireland and Spain – this increase is likely to reflect the heavy job losses resulting from accumulated excessive macroeconomic imbalances in the years preceding the crisis. For countries below the 45º line – most notably Germany, the Netherlands and Belgium – declines in responsiveness are likely to be largely a consequence of the substantial short-time working arrangements adopted over the course of the crisis. Moreover, euro area countries in which labour costs have been increasing relatively rapidly over the longer term have tended to experience higher increases in their unemployment rates.[2]

Wage responses to increases in unemployment

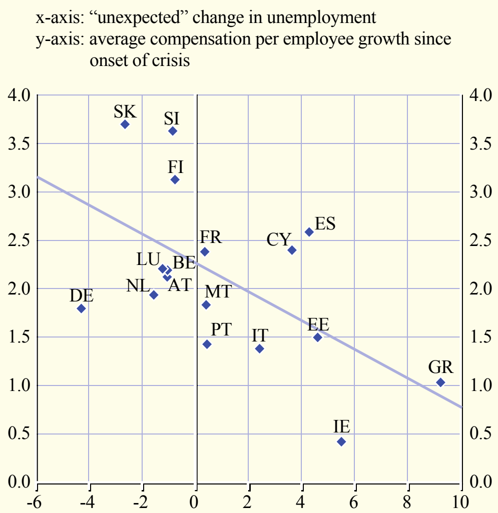
The considerable differences in labour market adjustment across countries since the crisis mostly reflect differences in labour market flexibility and institutional arrangements, as well as the amount of progress being made on structural reforms. Chart C shows how wages in the euro area countries have responded to "unexpected" changes in unemployment (proxied by the difference between the actual unemployment rate and the level expected on the basis of the

2 This topic was also discussed in the box entitled "Labour market adjustment in the euro area", *Monthly Bulletin*, ECB, March 2012.

pre-crisis Okun relationship). In a well-functioning labour market, high unemployment should exert downward pressure on wages. The larger than expected increases in unemployment seen in some countries (those on the right-hand side in Chart C) since the onset of the crisis should have led to a higher degree of wage moderation. On the whole, however, adjustments have varied considerably. Chart C shows that wage growth seems to have been more moderate than the average level (i.e. wage growth is below the trend line) in particular in Ireland. By contrast, wage adjustments have been significantly less responsive to larger than expected increases in unemployment in other countries (e.g. Cyprus, Spain and, until recently, Greece).[3]

Chart C Average annual growth in compensation per employee and "unexpected" change in unemployment, Q2 2008 to Q4 2011

(percentage points; annual percentage changes)



Sources: Eurostat and ECB staff calculations.
Notes: The "unexpected" change in unemployment is calculated as the gap between the actual unemployment level and the unemployment level expected on the basis of the pre-recession Okun relationship (Q1 1996 to Q1 2008 as in Chart B).

Concluding remarks

The economic and financial crisis has taken a heavy toll on euro area labour markets. Variations in the reaction of unemployment to the crisis reflect, in part, strong cross-country differences in labour market institutional arrangements, in the extent and impact of earlier structural reforms and in the sectoral concentration of job losses. At the same time, downward wage adjustment has been limited in a number of countries, despite the rise in unemployment, pointing to a need for further reforms to facilitate wage flexibility. In many of the worst-hit countries, structural reforms are ongoing. These will need to include further efforts to enhance labour market flexibility and wage moderation so as to facilitate the sectoral reallocation of displaced workers, encourage job creation and thereby reduce unemployment.

3 These results should, however, be interpreted with caution. In particular, average wage growth since 2008 masks strong moderations in recent quarters, often as a consequence of government-imposed public sector wage cuts in some countries. In addition, "unexpected" changes in unemployment are estimated on the basis of the gap between the actual unemployment level and the unemployment level expected on the basis of the pre-crisis Okun relationship, but for several countries this Okun relationship has only weak explanatory power. Moreover, for the purposes of Chart C, the pre-crisis Okun relationship is estimated up to the first quarter of 2008 for all countries (i.e. the crisis dates are not country-specific).