

BACK TO OKUN'S LAW? RECENT DEVELOPMENTS IN EURO AREA OUTPUT AND UNEMPLOYMENT

Euro area unemployment followed a downward trend from the start of EMU until spring 2008, falling progressively from 9.9% on the eve of Monetary Union to reach a 25-year low of 7.2% in the first quarter of 2008. As a result of the sharp decrease in euro area output over the course of the subsequent recession (amounting to a peak-to-trough decline in GDP of 4.4%), unemployment began to increase, rising by 2.8 percentage points before levelling off in the second half of 2010. Given the growing signs of improvement for the euro area labour market as a whole since then, this box revisits the relationship between changes in output and unemployment. It finds that, after deviating significantly from their longer-term trend for several quarters, aggregate unemployment developments look to be converging towards more typical patterns of response to changes in output, although strong disparities between euro area countries remain.

Okun's Law for the euro area

The relationship between contemporaneous changes in economic growth and unemployment is widely reported 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 decline in output growth of between 2% and 3% is associated with a one percentage point increase in the aggregate unemployment rate.¹

Chart A, on the basis of quarterly data, plots year-on-year percentage point changes in the euro area unemployment rate against contemporaneous annual percentage changes in GDP, from the launch of EMU in 1999 up to (and including) the first quarter of 2011 (as shown by the diamonds in Chart A). As illustrated by the slope of the bold blue trend line, the data suggest that, from the start of EMU to the onset of the recession (i.e. from the first quarter of 1999 up to and including the first quarter of 2008²), a one percentage point increase (or, conversely, a one percentage point fall) in euro area GDP growth was associated with a contemporaneous 0.4 percentage point

1 See Okun, A.M., "Potential GNP: Its Measurement and Significance", *Proceedings of the Business and Economic Statistics Section*, American Statistical Association, 1962, pp. 98-104.

2 A recession is defined in terms of quarter-on-quarter declines in GDP. As such, the euro area recession lasted for the period from the second quarter of 2008 up to and including the second quarter of 2009.

decline (or, respectively, a 0.4 percentage point increase) in the euro area unemployment rate.³

Over the course of the recession (shown as red diamonds in Chart A), widespread labour hoarding and a heavy reliance on “crisis measures” in a number of euro area countries led to some distortion in the relationship between changes in output and unemployment, lowering the “Okun” coefficient to around 0.3 percentage point (see the dashed red trend line in Chart A, which extends the relationship to the first quarter of 2011). This lower responsiveness was largely to be expected, owing to the widely used short-time working schemes introduced in many euro area countries precisely in an effort to maintain employment and stem the rate of job losses.

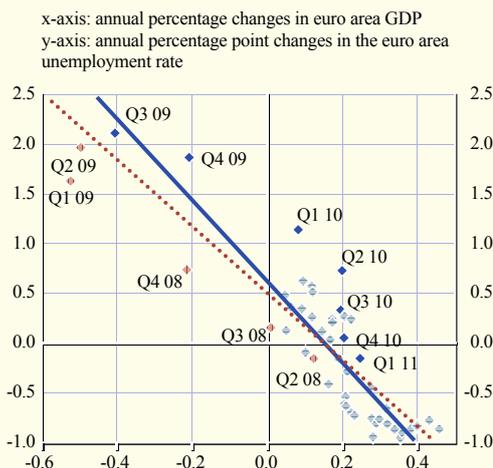
This initial lower responsiveness of unemployment to changes in output appears more recently to have largely reversed (see the progression of the bold blue diamonds in Chart A, which depict successive data releases since the onset of the recovery in euro area output). To some extent, the rise in the unemployment rate in early 2010 may be viewed, in part, as a delayed reaction to the lower responsiveness observed at the height of recession. Since the second half of 2010, however, unemployment developments appear to have been converging towards their previous relationship with GDP, with the latest observations being only slightly above the trend line.

Developments at the country level

Chart B shows the cumulative percentage output losses and percentage point increases in unemployment rates for the euro area as a whole, and for its member countries, since the onset of recession in the various economies.

Chart A Changes in GDP and the unemployment rate in the euro area

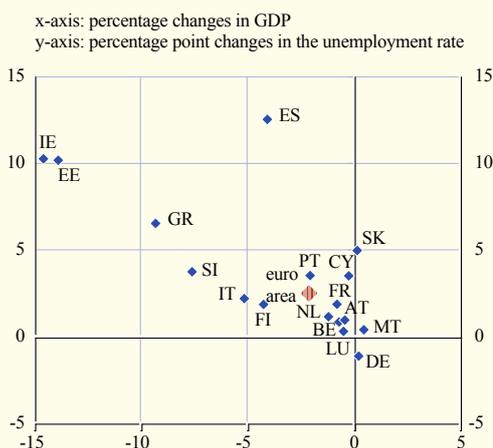
(annual percentage changes; percentage points; quarterly data)



Sources: Eurostat and ECB calculations.
Notes: GDP data are seasonally and working day adjusted; the unemployment rate is seasonally adjusted.

Chart B Cumulative changes in output and unemployment since the onset of recession

(percentage changes; percentage points)



Sources: Eurostat and ECB calculations.
Notes: All data are computed from local peaks in GDP. Cumulative effects are computed up to the first quarter of 2011, with some exceptions: GDP data end in the fourth quarter of 2010 for Belgium, Estonia, Ireland, Luxembourg, Malta, Portugal and Slovenia, while unemployment data end in the fourth quarter of 2010 for Estonia and Greece.

3 A simple ordinary least squares (OLS) regression quantifies the relationship $\Delta U = -0.40 \Delta GDP (9.4) + 0.64 (5.8)$ 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; $R^2 = 0.71$ from 37 observations over the period from the first quarter of 1999 to the first quarter of 2008 inclusive. These parameter estimates differ slightly from those reported in the box entitled “Links between output and unemployment in the euro area”, *Monthly Bulletin*, ECB, October 2009, owing to data revisions and the inclusion of Estonia in the euro area aggregate.

It is perhaps still too early to draw firm conclusions – not least given the differences in the speed of adjustment in unemployment across the euro area countries. However, there are clear variations in the unemployment responses of national labour markets to the recessions in their respective economies.

Several euro area economies (most notably Germany, Malta, Luxembourg and the Netherlands) appear to have rebounded fairly quickly from the sharp contractions in GDP, resulting in only modest or short-lived increases in unemployment. In Germany, despite an initially sharp and large contraction in GDP, a strong rebound has led to a decline in the unemployment rate to below pre-crisis levels. By contrast, other economies have experienced disproportionately large increases in unemployment rates – be it in relation to the size of their respective GDP losses (most notably Spain, Cyprus and Slovakia) or in comparison with the euro area average (most notably Estonia, Ireland and Greece). For the euro area as a whole, in the first quarter of 2011, GDP was still some 2.1% below its pre-crisis level and the unemployment rate 2.6 percentage points higher.

Concluding remarks

There can be many reasons for the diversity observed across countries. Differences in the sectoral composition of employment undoubtedly play an important role: indeed, the rapid downsizing that has taken place in formerly fast-growing construction sectors helps to explain many of the dramatic changes in unemployment seen in Estonia, Ireland, Spain and Slovakia and, to a lesser extent, in Slovenia and Finland.⁴ However, labour market policies and institutions also affect the speed at which labour markets adjust. Differences in the numbers 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.), have clearly influenced the speed and extent of the labour market adjustment across countries. It is likely to take some time for euro area labour markets to absorb the large numbers of workers made redundant over the course of the recession. This process can be supported by reforms of employment protection legislation in order to encourage firms to hire; reforms of tax and benefit systems, so as to improve incentives to work; and further efforts to enhance the flexibility of wage-setting arrangements, so as better to reflect local labour market conditions.

⁴ See also the article entitled “Labour market adjustments to the recession in the euro area”, *Monthly Bulletin*, ECB, July 2010.