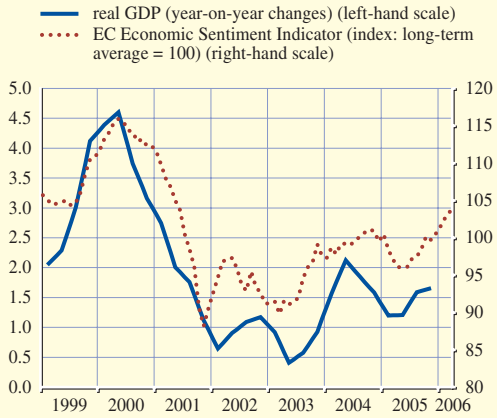
Box 5

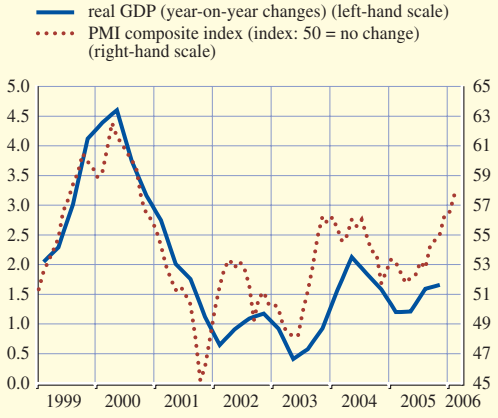
THE USEFULNESS OF BUSINESS TENDENCY SURVEY INDICATORS FOR CONJUNCTURAL ANALYSIS

Business tendency survey data are widely used for conjunctural analysis owing to their high frequency and timeliness. However, the value of such survey data ultimately depends on the extent to which they convey reliable information about economic developments. This box focuses on the usefulness of these data for assessing real GDP growth developments in the euro area and the three largest euro area economies.

Chart A Euro area business survey data and real GDP growth



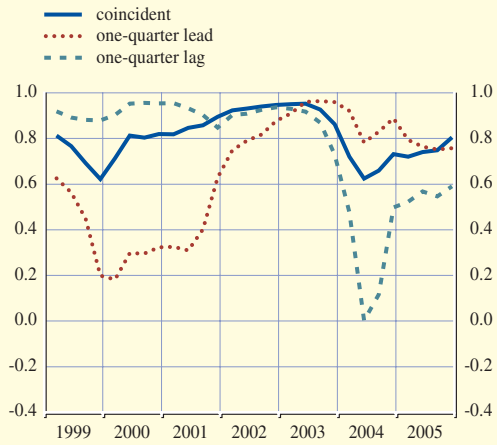
Sources: Eurostat and European Commission.
Note: GDP data are seasonally and working day adjusted.



Sources: Eurostat and NTC Economics.
Note: GDP data are seasonally and working day adjusted.

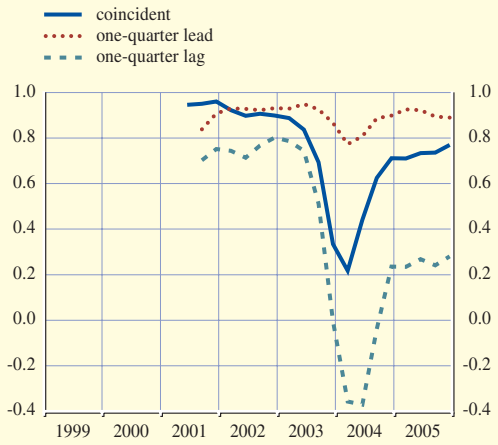
Chart B Rolling correlations between business survey data and year-on-year real GDP growth

EC survey and real GDP growth



Sources: Eurostat and European Commission.

PMI survey and real GDP growth



Sources: Eurostat and NTC Economics.

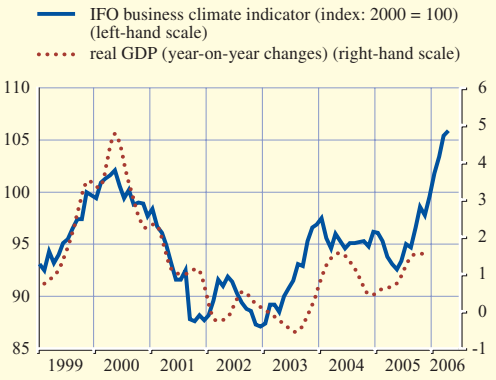
Survey data on euro area aggregate economic activity are provided by the European Commission's Economic Sentiment Indicator (ESI) and the composite Purchasing Managers' Index (PMI) published by NTC Economics.[1] While the ESI and the PMI have deviated from the GDP series on occasions, annual real GDP growth rates are generally positively correlated with both the ESI and the composite PMI (see Chart A). The ESI seems to be a coincident rather than a leading indicator for real output developments. Nevertheless, it still provides valuable information regarding the state of the business cycle, as it is published approximately one quarter before the national accounts. The PMI, in contrast, has exhibited stronger leading than coincident indicator properties over the short time period for which it has been available.

Rolling correlation coefficients allow developments in the co-movement between series to be traced over time and the stability of the relationship to be evaluated. Chart B shows correlations between survey data and year-on-year real GDP growth for a 12-quarter window for the period 1999-2005 (when available). In addition to the ESI, the composite PMI is also shown. The correlations between these two survey indicators and real GDP growth have exhibited rather unstable behaviour over the period in question. Of particular note is the dip in 2004, which could be related to the high degree of volatility of real GDP growth observed during the corresponding 12-quarter window that spans from mid-2001 to mid-2004. In 2004, the temporary deterioration in the ESI's coincident indicator properties resulted in the leading indicator properties being stronger. Still, over the last few years, the ESI and the PMI have retained reasonably good coincident and leading indicator properties respectively.

1 The ESI is a weighted average of confidence indices for manufacturing, services, consumers, retail trade and construction. Confidence indicators are composite indicators comprising responses from the respective surveys. The composite PMI index consists of both the manufacturing and services sector indices.

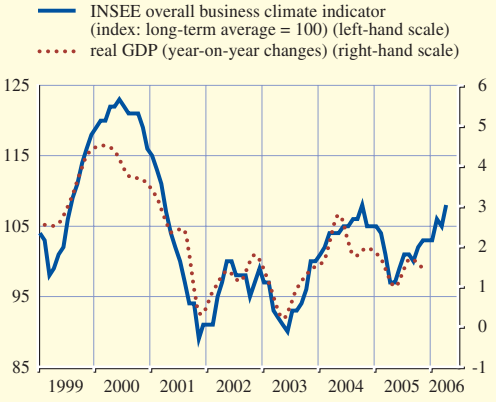
Chart C National business survey indicators and year-on-year real GDP growth

Germany



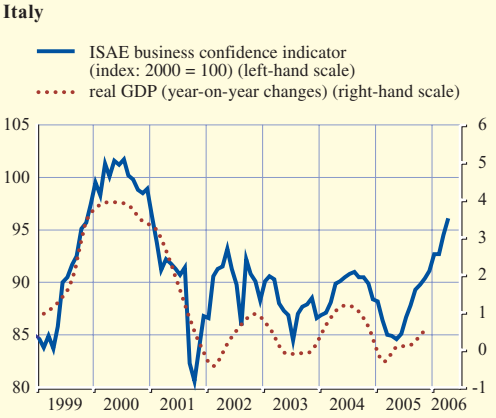
Sources: Eurostat and IFO.

France



Sources: Eurostat and INSEE.

Italy



Sources: Eurostat and ISAE.
Note: GDP data are seasonally and working day adjusted.

Maximum correlation between national business surveys and real GDP growth

	Period	Maximum correlation	Period	Maximum correlation
Euro area				
based on ESI	92:1 - 05:4	0.92 [0]	99:1 - 05:4	0.91 [0]
based on PMI			99:1 - 05:4	0.88 [+1]
Germany	81:1 - 05:4	0.83 [0]	99:1 - 05:4	0.83 [+1]
France	81:1 - 05:4	0.86 [0]	99:1 - 05:4	0.92 [0]
Italy	91:1 - 05:4	0.79 [0]	99:1 - 05:4	0.86 [0]

Note: Entries in this table report the highest correlation coefficients when investigating different lags and leads. Numbers in brackets report by how much the survey data leads (positive numbers) or lags (negative numbers) the year-on-year real GDP growth data. The ESI and the PMI are surveys for euro area aggregate economic activity. The IFO, the INSEE and the ISAE are the national business surveys for Germany, France and Italy respectively. All entries in the table are significant at the 1% level.

Turning to the three largest euro area countries, a substantial degree of co-movement between year-on-year real GDP growth and national survey data is observed for Germany, France and Italy (see Chart C). Occasionally, however, national business survey data and real GDP growth developments do provide conflicting signals regarding the state of the economy. While such periods of discrepancy between national business confidence surveys and real GDP growth are normally short-lived, more prolonged periods of discrepancy between the series have also been observed. The apparent conflict may sometimes be related to the fact that, on occasions, the survey data leads developments in real GDP growth. However, as this is not always the case, caution is warranted in interpreting such episodes of discrepancy between the two series.

Correlation analysis – showing the lag or lead at which the maximum correlation between economic activity and survey data has been obtained – indicates a significant level of co-movement between so-called hard and soft data across the board (see table), confirming the findings based on the visual inspection reported above in Charts A and B at the euro area level and Chart C for the three largest euro area countries. The results confirm that the ESI is best seen as a coincident indicator of euro area real economic activity, whereas the composite PMI shows better leading than coincident indicator properties over the time period for which it has been available. National business surveys are broadly coincident indicators of economic activity, although over the more recent period starting in 1999, the German IFO indicator appears to have shown some leading properties. Chart C confirms the leading indicator properties of the German IFO indicator, as it reveals – most notably since 2001 – a tendency for the survey data to lead the developments in economic activity. The computation of rolling correlation coefficients between survey data and real GDP for a 12-quarter window reveals a substantial degree of instability in the correlation between national business survey data and real GDP growth for Germany, France and Italy, as was the case for the euro area aggregate. Hence caution is warranted when trying to extrapolate future developments for economic activity on the basis of national survey data.[2]

Overall, these results suggest that survey data show a reasonable degree of co-movement with real GDP growth, especially when activity is measured in year-on-year terms. Occasionally, however, survey data and real GDP growth developments provide conflicting signals regarding the state of the economy, pointing to the need for caution in interpreting the information provided by survey data.

2 Results based on the use of the national ESI show broadly similar results in terms of correlation and rolling correlation compared with the results based on national business surveys for the three countries. For further details on the usefulness of the national ESI for conjunctural analysis at the country level, see also A. Mourougane and M. Roma (2002): "Can confidence indicators be useful to predict short-term real GDP growth?", ECB Working Paper No 133.