

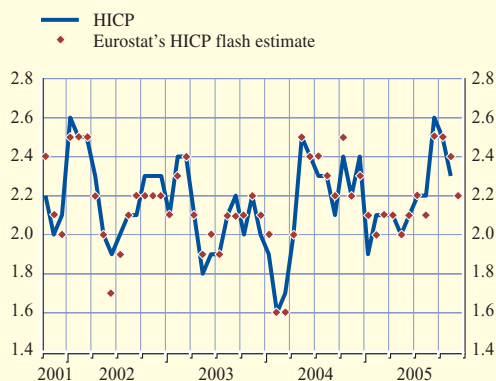
Box 3**ASSESSING THE RELIABILITY OF EUROSTAT'S EURO AREA HICP FLASH ESTIMATE**

Eurostat's euro area HICP flash estimate provides a very timely indication of euro area inflation developments. As the first flash estimate was released for the October 2001 HICP, there are now 50 months of official HICP figures against which to assess its performance.

The flash estimate is computed by Eurostat using econometric techniques that combine the available provisional national HICP figures with early information available from the European Commission's weekly Oil Bulletin about the prices of some energy products. In addition, where available, information regarding the effects on prices of one-off events, such as changes in indirect taxes, is also taken into account. Eurostat's estimate is generally released on the last working day of the reference month. Only the annual growth rate of the overall HICP for the euro area is published. The HICP flash estimate currently incorporates provisional national

HICP flash estimate and outcome

(annual percentage changes)



Source: Eurostat.

Table A Comparison of forecast performance statistics

(percentage points, unless otherwise indicated)

	Eurostat's flash estimate	Random walk	AR model
Mean error	0.00	0.00	-0.01
RMSE	0.09	0.21	0.20
Maximum deviation	0.2	0.5	0.4
Minimum deviation	-0.2	-0.5	-0.6
Absolute size of deviation	Number of occasions	Number of occasions	Number of occasions
0.0	22	11	18
0.1	25	15	16
>0.1	3	24	16

Source: ECB calculations.

estimates covering around 65% of the euro area HICP whereas, in the first two years of its publication, only HICP data for Germany and Italy and CPI data for Belgium were available – these countries accounting for a little over 50% of the euro area HICP. Greece and Spain began to produce provisional inflation data sufficiently early for inclusion in the euro area HICP flash estimate in 2003 and 2004 respectively.

Summary of performance to date

The chart plots the flash estimate alongside the actual HICP outcome. Generally the flash estimate appears to have performed well. Of the 50 releases to date, 22 were entirely accurate, 25 were 0.1 percentage point out and three were 0.2 percentage point out. In addition, the flash estimate has never suggested that the inflation rate declined when it actually increased, or vice versa. Lastly, the average deviation between the flash estimate and the actual HICP outcome – the mean error reported in Table A – is exactly 0.0 percentage point. This indicates that there has to date been no tendency toward bias in the flash estimate as a predictor of the official HICP outcome.

Another measure that can be used to assess the reliability of the flash estimate is the root mean square error (RMSE). The RMSE measure, which provides an indication of the average size and variability of the deviation between the flash estimate and the actual HICP outcome, shows that the flash estimate has clearly outperformed both a random walk forecast (i.e. assuming an unchanged annual inflation rate) and a forecast based on a simple Autoregressive (AR) model of inflation (see Table A). This indicates the usefulness of the flash estimate in providing information about the latest inflation developments compared with other simple benchmark indicators.

Possible sources of deviation between the flash estimate and the HICP outcome

Deviation of the flash estimate from the HICP outcome may arise from a number of sources. First, the HICP is a revisable index and countries that have provided provisional information may subsequently revise their data based on more complete information. Second, inflation developments in countries which have not provided provisional information may move differently to developments in countries for which provisional information is available. Third, volatility in

the seasonal pattern or other atypical developments in some HICP components may be difficult to capture using econometric techniques. Lastly, deviation between the flash estimate and the HICP outcome may simply reflect the rounding of the price indices employed in the calculation of inflation.

Analysis suggests that differences between inflation developments in countries which have provided provisional information and those in countries which have not may explain a small part of the deviation between the flash estimate and the HICP outcome. The correlation coefficient is approximately 0.2 between deviations of the flash estimate from the HICP outcome and differences in inflation developments between the countries providing data and those that do not. Furthermore, it is interesting to consider whether developments in particular components have been associated with deviation from the flash estimate. Table B shows the correlation of (seasonally adjusted) month-on-month changes in the components of the HICP with deviations between the flash estimate and the HICP outcome.¹ The results indicate that the highest correlation is to be found with movements in the two food components (unprocessed and processed food), at 0.23 and 0.33 respectively. Given the high volatility of oil price developments and their significant contribution to inflation over the last four years, it is not surprising that some correlation also exists with the energy component. However, the information available from the European Commission's weekly Oil Bulletin may have served to limit the extent of deviations emanating from energy price developments. The relatively low correlation with developments in both the non-energy industrial goods and the services components suggests that such developments are captured fairly well through available country data when the flash estimate is compiled and by the econometric techniques used by Eurostat.

Overall, it appears that some of the deviations may relate to differences in inflation patterns between the countries providing data and those that do not, and to component-specific developments. Other factors such as the rounding conventions employed to calculate the HICP² and data revisions may also have played a role. However, this analysis can only be regarded as indicative given that the flash estimate incorporates information from a number of sources and some judgement.

Forthcoming improvements in the flash estimate

In conclusion, Eurostat's euro area HICP flash estimate has significantly improved the timeliness of a key economic indicator for the euro area and has performed very satisfactorily over the past four years. Looking forward, the performance of the flash estimate is expected to improve further as a result of work by Eurostat and the national statistical institutes on the Principal European Economic Indicators.³ The national statistical institutes of France, Austria and Finland

Table B Correlation coefficients between monthly changes in HICP components and deviation of the flash estimate from the HICP outcome

HICP component	Correlation
Unprocessed food	0.23
Processed food	0.33
<i>Unprocessed and processed food</i>	<i>0.34</i>
Non-energy industrial goods	0.06
Energy	0.18
Services	0.02

Source: ECB calculations.

1 As the flash estimate is presented in terms of the annual rate of change, deviations from the actual HICP outcome should not be due to "normal" seasonal variations. Thus, the seasonally adjusted month-on-month rates of change are used to capture atypical developments in the individual components.

2 At present the overall euro area HICP is calculated on the basis of country indices rounded to one decimal place and is then rounded to one decimal place in turn. Hence, small country-specific developments can sometimes give rise to 0.1 percentage point deviations from the outcome, both in the estimates provided by Member States and in the euro area flash estimate.

3 See also Box 6 in the December 2005 issue of the ECB Monthly Bulletin entitled "Further progress on the Principal European Economic Indicators".

have indicated that in 2006 they will start providing provisional information to Eurostat for inclusion in the euro area flash estimate. Moreover, work on a national HICP flash estimate is also being undertaken in the Netherlands. As a result, the overall country coverage of the euro area flash estimate may increase to more than 95%, which would further enhance its reliability.