

Explaining the new GDP fan chart

The MPC's projection for GDP growth is presented in the form of a fan chart rather than a single point forecast because the future is inherently uncertain.⁽¹⁾ But the past is uncertain too. Official measures of past GDP growth are regularly revised as new information is received and methodological improvements are made. In forming its projections, the MPC makes allowance for this 'data uncertainty', aiming off from early estimates of the official data when it is appropriate to do so. But until recently neither the scale of these adjustments, nor the range of uncertainty around them, have been explicitly reported. Instead, the past has typically been represented by the latest vintage of official GDP data.⁽²⁾

Analytical techniques developed by Bank staff now make it possible to address these issues in a more systematic way.⁽³⁾ Charts 5.1 and 5.2 therefore show the MPC's best collective judgement of the most likely path for the mature estimate of GDP growth, and the uncertainty around it, both over the past and into the future. The charts have four key features:

- To the left of the first vertical dashed line, the centre of the darkest band of the fan chart gives the Committee's best collective judgement of the most likely path for GDP growth once the revisions process is complete. The estimate is based on an analysis of business surveys and the past pattern of official data revisions. Further details of the methods used are given in the references shown in the footnote.
- The fan around this path captures the degree of uncertainty about that central estimate, and can be interpreted in the same way as the other fan charts in this section. The width of the fan — which covers 90% of the distribution — is calibrated using historical information on the scale of official data revisions. The fan becomes progressively narrower the further back in time one goes, reflecting the decreased incidence of revisions for more distant periods. As with the projection for the future, the distribution underpinning the fan for the back data is subject to MPC judgement.
- The current vintage of official GDP data is shown by the solid black line. The most likely path for the mature data lies above the current vintage in the most recent period, suggesting that it is more likely than not that recent official estimates will ultimately be revised upwards. But the degree of uncertainty is considerable — indeed there is also a significant chance that growth could eventually be revised downwards.
- The MPC's projection for GDP growth, shown to the right of the first vertical dashed line, is constructed broadly as before. But the four-quarter growth rates in the first year of the projection are now expressed relative to the MPC's best collective judgement of the most likely path for the mature data for GDP growth, rather than the current vintage of official data. That has two consequences. First, care is needed when comparing the projection to early official data releases, or to other forecasts expressed in terms of the official data. And, second, the fan is now a little narrower at the start of the projection, consistent with the fact that the central estimate of mature GDP growth — against which the four-quarter growth rates at the start of the projection are now expressed — should be less prone to revision than the current vintage of data.

The fan charts for CPI inflation shown in **Charts 5.3** and **5.5** continue to use the official data to describe the past. That is because CPI inflation is rarely revised. The implications of uncertainty about past GDP for the inflation outlook will nevertheless be captured in the fan around the CPI projection.

The Bank will continue to refine its approach to data uncertainty. The ONS has an ongoing programme of improvements to the methods used to measure GDP, and it will be important to reflect these as they come on stream. The Bank's methods will also be assessed in the light of their ability to predict future GDP revisions.

(1) See the box on pages 48–49 of the May 2002 *Inflation Report* for a fuller description of the projection fan chart and what it represents.

(2) An alternative projection showing Bank estimates of past GDP growth was illustrated on page 36 of the *August Report*.

(3) Further information is available in Cunningham, A and Jeffery, C (2007), 'Extracting a better signal from uncertain data', *Bank of England Quarterly Bulletin*, Vol. 47, No. 3, pages 364–75; and 'Risk, uncertainty and monetary policy', a speech given by Charles Bean on 31 October, and available at www.bankofengland.co.uk/publications/speeches/2007/speech327.pdf.