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Inflation target bands and the Bank of England's fairly substantial lump of inflation uncertainty, by Silvia Sgherri and Kenneth F. Wallis (October 1997)

In a monetary policy regime of inflation targeting, the objective is typically specified as a range of outcomes for future inflation. How wide should this band be? One way of answering this question is to build a macroeconomic model of the economy and then use suitable analytic or numerical techniques to assess the variance of inflation under alternative policy reactions to shocks. In a recent study Haldane and Salmon (in *Targeting Inflation*, A.G. Haldane (ed.), Bank of England, 1995) estimate a "small semi-structural model" of the UK economy with backward-looking expectations, and use stochastic simulation techniques to calculate the variance of inflation under simple feedback rules for interest rates. Their most striking conclusion is that there exists "a fairly substantial lump of inflation uncertainty" in the United Kingdom, which implies, for example, that there is "on average, a no better than one in four probability of hitting a 1%-4% inflation target". The model has several important shortcomings, however, such that inflation responds only weakly to interest rate changes, and this paper presents an evaluation and extension of their model and methods, in order to provide a more soundly-based answer to the band-width question.

The paper remains in the "small stylised model" framework, and uses the Haldane-Salmon dataset. Their model is essentially linear, and instead of stochastic simulation techniques, analytical methods can be applied to our revised and extended version of the model. Some small revisions are made to their estimated equations, while the extensions are the endogenization of the exchange rate and the adoption of an explicit forward-looking treatment of expectations. These changes, together with a recalibration of the error covariance matrix to reflect the reduced magnitude of shocks experienced in the last decade of the sample, achieve a fairly substantial reduction in inflation uncertainty: the estimated probability of hitting a 1%-4% inflation target is increased from "no better than one in four" to almost 0.9.