AMEN Workshop

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Discussion of the paper:

"Prior for Growth rates, small sample bias and the effects of monetary policy" (by Jarocinsky, Marcet)

Gianni Amisano

University of Brescia

1 Main aim of the paper

- very interesting paper based on a simple and clever idea

- see Bayesian approach on a different viewpoint

- link Bayesian literature on priors on (V)AR models to bias correction

- novel interpretation of priors in this regard

- propose new prior based on growth rates (delta prior)

- assess properties of delta prior with alternatives

- proposed prior fares well wrt to (some) alternatives

2   Related literature

- literature on OLS bias and bias correction (mainly Kilian 1998)

- Sims (1988), Sims and Uhlig (1991), Phillips (1991), Schotman and van Dijk (1991, 1992), Uhlig (1994).

- Doan et al. (1984), Ni and Sun (2003)

3   Methodology

OLS biased for finite samples. Needed correction

Bayesian and classical estimators radically different: helicopter tour

$$p(\rho|\widehat{\rho}) \text{ symmetric}$$
$$p(\widehat{\rho}|\rho) \text{ asymmetric}$$

what makes these 2 distributions so different?

Flat prior in a dynamic framework is highly informative! (Phillips, 1991): flat prior gives high prior probability to parameter values which correspond to high growth rates.

If researcher specifies a prior that gives low probability to high growth rates, then this generates a distribution for $p(\rho|\widehat{\rho})$ which is asymmetric.

$\Rightarrow delta$ prior

in a multivariate framework (VAR):

$$\Delta y_t \ \curvearrowright \ N(g, \Sigma_\Delta) \text{ (equation 9 p. 14)}$$
$$\Sigma_\Delta \ = \ \Sigma_g + \Sigma_\varepsilon$$

use a (fictitious) sample of T_0 to satisfy equation 9.

2 alternative approaches

a) these pseudo observations are drawn by simulation, and used to obtain a simulation based posterior distribution (via reweighting)

b) use actual first T_0 observations in the sample (conditional posterior)$\Rightarrow$ much easier GS based approach

Dichotomy: first T_0 obss enter twice: via likelihood and via prior. last $T - T_0$ only through likelihood.

$\Rightarrow$Data used to construct prior (?)

4   Empirical Results

- Monte Carlo study: proposed approach compared to competing ones to achieve bias correction (bootstrap based) and with OLS. Univariate model.

- Multivariate application on CEE (1999) data set: delta prior to correct OLS underestimation of roots and therefore underestimation of length of policy shock effects.

5   Some remarks

- paper clarity can be substantially improved (not sure this is an "objective", as opposed to subjective problem)

- "Philosophical" issue: Bayesian and classical approach as worlds apart.

- Issue of overparameterisation: more important is achieving efficient estimates (Amisano and Federico, 2005).

- Issue of model specification: non Gaussian errors, non constant variance, time varying parameters, switches ... Bayesian approach has a much clearer advantage here.

- How do two versions of the proposed prior differ ?

- Issue of using sample information. How about using a training sample?

- Needed more comparisons with competing Bayesian approaches: DLS and derivations , Phillips (1991) and derivations, theory instigated priors (Ingram and Whiteman 1994), Schorfheide and Del Negro (2005).