

# Discussion: Analysing identification issues in DSGE models by Nikolai Iskrev and Marco Ratto

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# Summary

- This paper derives local identification checks for parameters in DSGE models based on the first two moments of the observed variables.
- Speed of computation increased compared to Iskrev (2010) through computation of derivatives w.r.t. each parameter separately
- A toolbox implemented in DYNARE Version 4.1 and examples for 6 different models (Kim 2003, An and Schorfheide (2007), Levine et al. (2008), Smets and Wouters (2007), Ratto et al. (2009) and Ratto et al. (2010)) are presented.

# Performed tests(Monte Carlo analysis)

- Strict identification analysis

- ▶ Rank condition test by Iskrev (2010). Check if  $J(T) := \frac{\partial m_T}{\partial \theta'}$  has full rank i.e. if columns are linearly dependent.
- ▶ If  $J_2 := \frac{\partial \tau}{\partial \theta'}$  has full rank but  $J(T)$  not, parameter is not identified given the observed variables.

- Weak identification analysis

- ▶ Plot multi-collinearity measure for Monte Carlo sample (rescaling the rows of the Jacobian to give equal weight to every data moment).
- ▶ Compute correlation coefficient of parameters pairs for MC sample.

# Suggestions

- Show graphically values of each parameter within the bounds which ceteris paribus lead to a unique model solution.
- $u_t$  declared twice as vector of structural shocks in the transition equation and vector of exogenous variables in measurement equation.