README

This folder contains the Matlab codes to estimate the baseline DSGE model in "Investment Shocks and the Relative Price of Investment" by Justiniano, Primiceri and Tambalotti (JPT). Requires a license for Matlab's Statistical Toolboox.

The estimation allows for a split sample at a user determined date, at which the trend growth rates of neutral and investment specific technology shocks is allowed to change.

The data are in subfolder baseline, in dataRED.xls. Contains the 8 series used for the estimation: [Quarterly GDP growth, Quarterly consumption growth; Quarterly investment growth; Hours; Quarterly real wage growth; Quarterly inflation; Quarterly federal funds rate, Quarterly growth rate in the relative price of consumption to investment].

The folder also includes an informed guess to initialize the optimization, prior to running a Metropolis algorithm.

Output from the minimization and mcmc written to the xls file tab_output in the subfolder baseline.

Description of codes

- **Red_main.m**
  Main code controlling the estimation of the baseline DSGE model of

- **modptjREDmain.m**
  Baseline model file. Solves the JPT model and computes the reduced-form, state space representation, for each subsample.

- **modptjREDsub.m**
  Model for an individual sample, called from **modptjREDmain.m.**

- **logpostSPLIT.m**
  Computes the value of the posterior of the JPT model, for a given value of the structural coefficients, allowing for a split sample. Can be used either for numerical maximization of the posterior or for MCMC (see annotation in the code).

- **logpriorJPT.m**
  Evaluates the prior for a given value of the structural coefficients of the JPT model. To be used for the numerical maximization of the posterior.

- **inverse_gamma_specification.m, pdf_igone.m, logBetapdf.m, logGammapdf.m, logIG1pdf.m**
  Evaluate various prior densities.

- **bounds.m, boundsINV.m, jacobJPT.m**
  Auxiliary codes for transforming the constrained maximization problem into an unconstrained one.
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- **Modtomin_ab, mintomod_ab.m** Additional auxiliary codes for the constrained optimization problem.

- **kfilter.m**
  Kalman filter code.

- **diclyap_fast.m**
  Auxiliary code that solves the Lyapunov equation.

- **Folders “Chris Sims’ csminwel” and “Chris Sims’ gensys”**
  Codes for the numerical maximization and solution algorithms. They can also be downloaded from Chris Sims’ webpage.