

Readme file of estimating a HANK_Model_CT

Main M files

- main_est_model_HANK_2job.m
- main_smc_2job.m
- main_j2_result.m

How to estimate a HANK_CT model

- You run a M file "**main_est_model_HANK_2job.m**", and then, this code call the M file "**main_smc_2job.m**" which loads a csv file as data and read a csv file as prior setting from "data" folder.
- You can change the following setting of SMC in M file "**main_est_model_HANK_2job.m**".

```
39 disp('Start SMC^2 ')
40 ncores = 8 % number of core of CPU for parallel computing
41
42 data_country = 1 % 1: Japan, 2:US
43 def_switch = 1 % 1st deference for GDP = 1, level = 0
44
45 %% setting of SMC procedure
46 nsim = ncores*50 % # of particles of parameters
47 nstage = 5 % # of stages
48 npara = 18; % # of parameters
49 cc1 = 0.5 ; % adjustment coefficient of SMC
50 N_Blocks = 5; % Number of random Blocks of sampling
51
```

- You can change the following setting of HANK in M file "**main_est_model_HANK_2job.m**".

```
17 %% setting of environment of HANK model
18 I = 100; % number of grids of one ASSET
19 J = 2; % number of grids of states of JOB
20 n_v = I*J + 1; % number of JUMP variables (value function + inflation)
21 n_g = I*J + 2; % number of ENDOGENOUS state variables (distribution + monetary + Fiscal policy)
22 n_p = 6; % number of static relations: bond-market clearing, labor market clearing, consumption, output, tax
23 n_shocks = 3; % number of SHOCKS, i.e., monetary policy shock, fiscal policy shock, TFP shock.
24 nErrors = n_v;
25 nVars = n_v + n_g + n_p;
26
```

How to summarize results

- You run a M file "**main_j2_results.m**", which calculate variance decomposition, and draws graph of Value functions, stationary distribution of agents, IRF and historical decomposition.